Directorate For Engineering
Fiscal Year 1992
Directory of Awards

National Science Foundation

Introduction

The National Science Foundation

The National Science Foundation (NSF) was created in 1950 as an independent agency of the Federal government. Its functions include the support of research and education in engineering and the sciences. NSF continues to explore the frontier primarily by sponsoring basic research, stimulating technology, and strengthening engineering and scientific education in engineering and the sciences. NSF makes awards to academic institutions, private research firms, industrial labs, and major research facilities and centers. About 55,000 experienced researchers and educators from across the country, representing a wide variety of disciplines, volunteer their time to help Foundation staff assess the merits of more than 30,000 proposals a year.

Directorate for Engineering

Through its Directorate for Engineering (ENG), NSF promotes the progress of engineering and technology, helping the Nation stay in the forefront of technology by giving engineering education and research broad, long-range support.

Vision Statement

Engineering integrates new knowledge across ever changing disciplines and applies it to the creation of new and improved products, systems, and services. Done well, the creation of shared wealth with a respect for the quality of life and the environment is the result. As we enter the 21st century, we envision an integrated engineering community, forged out of the many engineering and related science disciplines. Added attention to disciplinary interfaces, where new knowledge is increasingly created, will generate fresh ideas and directions for engineering and boost the synergy between education and research. Innovative couplings between universities, industry, and government will develop to exploit new discoveries, applying engineering solutions to the Nation's most pressing problems. The engineering process will facilitate social and economic progress.

Because of improvements in the quality of education, engineers in the 21st century will have a broader command of science and technology, as well as a better understanding of the world and its peoples. Increasingly, they will reflect the rich fabric of American life, with all its diversity. They will be able to assume stronger leadership roles in government, industry, and academe. Likewise, the education of all citizens will include an early exposure to the engineering process and its impact on society, which is needed to understand and deal with our rapidly changing technological world.

Mission Statement and Goals

In the context of its vision, NSF fosters excellence, quality, and innovation in the development and application of engineering knowledge and human resources to enhance the Nation's economic well-being, security, and quality of life. The Directorate for Engineering is clearly in the "capacity building" business and does not support research only for the resulting new knowledge. Rather, it also seeks to increase the potential of the engineering community, to create and apply technology and to educate the next generation of engineers. In pursuit of this mission, the Directorate has established the following goals:

- Improve the quality of engineering education and the retention of students to yield well-educated, professionally oriented engineers who are able to assume broad leadership roles in society.

- Foster intellectual growth and technological advances by supporting leading-edge research in the engineering disciplines and at disciplinary interfaces where new knowledge is increasingly created.

- Increase the scholarly synergy between education and research and emphasize design, synthesis, and experimentation in these activities.

- Increase significantly the number of women, underrepresented minorities, and persons with disabilities who participate fully in engineering education, research, and practice.

- Foster increased cooperation among the diverse engineering constituencies, including building stronger bridges between academe and industry, and encourage cooperation with other countries to promote mutually beneficial sharing of knowledge and resources.

Divisions of the Directorate for Engineering

Engineering's mission is carried out through the creative interaction of the following seven divisions:

Biological and Critical Systems (BCS)
The division is composed of *Bioengineering, Environmental and Ocean Systems*, and *Hazard Mitigation Research.*

Bioengineering applies engineering methods to problems in the life and health sciences and develops new engineering technologies through knowledge of the living system. *Environmental and Ocean Systems* focuses on the contaminant interactions that threaten the quality of land, water, and air and research into the use of coastal ocean space, advanced sensing and measurement techniques, structures, and vehicles.

Hazard Mitigation Research targets Earthquake Hazard Mitigation and Natural and Man-Made Hazard Mitigation. In addition to research into engineering, planning, and societal aspects of earthquake hazard reduction, support is provided for engineering research to reduce the social impacts of such phenomena as strong winds, landslides, expansive soils, floods, and drought.

Chemical and Thermal Systems (CTS)
Chemical manufacturing and thermal processes are fundamental to technological progress in a range of areas, including energy, the environment, pharmaceuticals, new materials, and food. The division supports research that helps maintain American preeminence in the chemical and pharmaceutical industries, which consistently have produced a positive balance of international trade. Examples of research include membrane and electrically assisted bioseparations, the synthesis of diamond films for use in electronic devices, and advances in catalysis.

Design and Manufacturing Systems (DDM)
The division supports research to develop and expand the scientific and engineering foundations of manufacturing and materials processing across a spectrum of U.S. industries. Key research areas include advanced materials-processing methods; concurrent design of materials; processing and manufacturing; and developing machines, sensors, and technologies for computer control of manufacturing processes and operations. A vital part of this effort includes developing operations research and production systems methods that underlie the range of engineering systems.

Electrical and Communications Systems (ECS)
The division seeks to enhance the knowledge base for electrical, electronic and photonic, electromechanical, and optical technologies and to facilitate their integration with engineering education. ECS also develops the analytical tools and techniques for computational simulation and control of complex engineering systems and aims to accelerate the emergence of potentially high-impact technologies of national importance.

Engineering Education and Centers (EEC)
The mission of the division is to create new paradigms and improve the quality of engineering education and research by emphasizing engineering practice through a cross-disciplinary team approach and systems integration and industrial linkages. EEC seeks to increase the number of engineering professionals by more effectively developing and retaining the Nation's human engineering resources. EEC's *Engineering Education* programs seek to improve the quality of engineering education and retain students to yield well-educated, professionally oriented engineers who are internationally competitive and able to assume broad leadership roles in society. These programs address curriculum development, graduate student support, and research experiences for undergraduates.

The *Engineering Centers* programs support university-based research centers across a spectrum of technologies essential to U.S. economic competitiveness. The centers also address fundamental research issues crucial to next-generation technological advances and involve university/industry/government planning, research, and education.

Industrial Innovation Interface (III)
The division is responsible for a range of research and analysis programs that affect U.S. industrial productivity. These programs, which aim to improve the speed and efficiency of transferring the results of NSF research and technology to the marketplace, are the *Small Business Innovation Research (SBIR) Program*, the *Management of Technology Program*, and the *Special Studies and Analysis Program.*

Mechanical and Structural Systems (MSS)
The division supports research that enhances engineering knowledge in structures, geomechanics, mechanics, materials engineering, tribology and surface engineering, and mechanical systems. A major national problem is the decaying infrastructure--buildings, bridges, and highways. MSS-supported research is helping assess the condition of such facilities and provide new construction materials and processes to enhance the infrastructure.

General Information

The Foundation provides awards for research in engineering and the sciences. The awardee is wholly responsible for the conduct of such research and preparation of the results for publication. The Foundation, therefore, does not assume responsibility for such findings or their interpretation.

The Foundation welcomes proposals on behalf of all qualified engineers and scientists, and strongly encourages women, minorities, and persons with disabilities to compete fully in any of the research and research related programs described in this document. Because the Foundation is making a determined effort to increase the award duration, proposers are encouraged to submit research proposals having a 3-year research plan and budget.

In accordance with Federal statutes and regulations and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity receiving financial assistance from the

National Science Foundation.

Facilitation Awards for Handicapped Scientists and Engineers (FAH) provides funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on an NSF project. See the FAH program announcement, or contact the FAH Coordinator in the Directorate for Education and Human Resources. The National Science Foundation has TDD (Telephonic Device for the Deaf) capability that enables people with a hearing impairment to communicate with the Division of Personnel and Management regarding NSF programs, employment or general information. This number is (202) 357-7492.

Catalog of Federal Domestic Assistance, Number 47.041, Engineering.

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Research Reports

Research findings and results of studies supported by NSF are generally published in scientific journals or as reports prepared by the grantee institutions for NSF. A few of these technical reports, when available, are sold by the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, (703) 487-4650. For information on the price and availability of these reports, contact NTIS.

Databases in Science and Technology

STIS flyer 91-10 is included with this publication and can be found on the back cover. STIS is NSF's electronic dissemination system that provides easy access to NSF publications. The full text of publications can be searched online and copied from the system. Electronic publications supplement the wide distribution of printed material from NSF. There is no charge for connect time and no password is needed to access the system. The service is available 24 hours a day, except for maintenance periods, and up to 10 people can be on the system at the same time.

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Award Definitions and Explanation of Format

Engineering Directory of Awards provides bibliographic data on the engineering awards granted each fiscal year of NSF's Directorate for Engineering (ENG). All awards are listed under their primary division and within division by program or sub-program. Within each sub-program is an alphabetical listing of awards by the Principal Investigator's last name. Split-funded awards are listed under primary programs and under those programs which contributed to that award. All data is reconciled with NSF's Division of Information Systems (DIS).

Award listings include the following information:

1. Title: the title of the award.

2. Principal Investigator: the chief engineer, scientist, or administrator who is responsible for the research plan and fiscal expenditures of the award.

3. Name and Address of the Institution: any college, university, laboratory, industry, or other organization designated as the NSF awardee.

4. Award Number and Starting Date: includes the award number, and the amendment number, if applicable, and the starting date of the award.

5. Amount, Duration, and Program's Award Contribution.

6. Split-funded Award information: provides financial data on awards with merited support from more than one program.

for example
Transport Processing
Swamboli, James; State University, Leonard, MD 20656
ECS 2945609 A01; 1/4/92, @10,000, 12 mo.
Jointly funded with Solid State & Microstructures Program

Notice

Do not use the funding amounts in this publication for statistical purposes. Grants that are jointly funded can lead to duplicate records and inaccurate totals. Additionally, many grants are awarded for three or more years while this publication only shows funds allocated in FY 1992.

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Biochemical and Biomass Engineering

Acid-Catalyzed Formation of Ethyl-Butyl Ethers in Near- and Supercritical Water
Antal, Michael; University of Hawaii-Manoa, Honolulu, HI 96822
BCS 9111743 A001; 09/01/1991; $71,493; 12 mo.

Conference on Tissue Engineering: A Perspective
Bell, Eugene; Keystone Center, Dillon, CO 80435
BCS 9116310 A000; 01/01/1992; $15,000; 12 mo.
Jointly Funded with BIOMEDICAL ENGINEERING $4,909

Tailoring of Protein A Specificity by Genetic Engineering and In Vivo Selection
Benedik, M.; Willson, Richard; University of Houston, Houston, TX 77204
BCS 9207872 A000; 09/01/1992; $92,948; 12 mo.

Molecular Thermodynamics of Protein Precipitation in Aqueous Solution
Blanch, Harvey; Prausnitz, John; University of California-Berkeley, Berkeley, CA 94720
CTS 8914849 A002; 09/15/1990; $63,795; 0 mo.

Macromolecule Transport Mechanisms in Bacterial Biofilms
Bryers, James; Duke University, Durham, NC 27708
BCS 9020502 A001; 07/01/1991; $74,598; 12 mo.

Cellular Mechanisms of Neurite Outgrowth and Guidance
Buettner, Helen; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
BCS 9210540 A000; 08/01/1992; $99,956; 36 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $27,660

Engineering Foundations Sixth Conference on the Recovery of Biological Products
Builder, Stuart; United Engineering Trustees Inc., New York, NY 10017
BCS 9216393 A000; 06/15/1992; $15,000; 12 mo.

Reversed Micellar Fractionation of Recombinant-DNA Therapeutic Protein Intermediates
Castor, Trevor; Bio-Eng Inc., Arlington, MA 02174
III 9160618 A000; 03/15/1992; $50,000; 6 mo.

NSF Young Investigator
Chalmers, Jeffrey; Ohio State University Research Foundation, Columbus, OH 43210
BCS 9258004 A000; 09/01/1992; $25,000; 12 mo.

Intracellular Ion Concentrations and Energy Metabolism in Agitation-Stressed Suspensions Cells
Cherry, Robert; Duke University, Durham, NC 27708
BCS 8921153 A002; 06/01/1990; $55,302; 12 mo.

Response of Anchorage Dependent Cells to Cyclic and Turbulent Shear Stresses
Cherry, Robert; Duke University, Durham, NC 27708
BCS 9008605 A001; 05/01/1991; $64,035; 12 mo.

Protein Separations with Microporous Immunoaffinity Membranes
Colton, Clark; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9012574 A002; 09/01/1990; $2,459; 12 mo.

Enzyme Hydrolysis Kinetics of Pretreated Lignocellulosic Substrates
Converse, Alvin; Dartmouth College, Hanover, NH 03755
BCS 8919335 A002; 03/15/1990; $58,427; 12 mo.

Pathogenesis of Device-Related Infections
Cooper, Stuart; Mosher, Deane; Proctor, Richard; University of Wisconsin-Madison, Madison, WI 53706
BCS 9120660 A001; 09/01/1991; $168,000; 12 mo.

Summer Gordon Research Conference 1992
Cruickshank, Alexander; Kagan, Herbert; Gordon Research Conferences, Kingston, RI 02881
IBN 9202477 A000; 05/15/1992; $142,500; 12 mo.
Jointly Funded with MACROMOLECULAR BIOCHEMISTRY and BIOPHYSICS $32,000

Amplification of Integrated Cloned Genes in Saccharomyces Cerevisiae
Da Silva, Nancy; University of California-Irvine, Irvine, CA 92717
BCS 9119808 A000; 03/15/1992; $240,851; 36 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $120,425

Intracellular Signaling in Mammalian Cells Induced by Physical Forces
Diamond, Scott; SUNY at Buffalo, Amherst, NY 14228
BCS 9211197 A000; 08/01/1992; $94,883; 36 mo.

Presidential Young Investigator Award
Dordick, Jonathan; University of Iowa, Iowa City, IA 52242
BCS 8958415 A005; 07/01/1989; $62,500; 12 mo.

Bioactive Material Template Surfaces for In Vitro Synthesis of Bone Tissue
Ducheyne, Paul; Pollack, Solomon; Bonnell, Dawn; Shapiro, Irving; University of Pennsylvania, Philadelphia, PA 19104
BCS 9202314 A000; 09/01/1992; $200,000; 12 mo.
Jointly Funded with BIOTECHNOLOGY $25,000

Micromixing in Fermentation
Dunlop, Eric; Mattoon, James; Colorado State University, Fort Collins, CO 80523
BCS 9022158 A001; 05/15/1991; $120,139; 12 mo.

Viscous Fingering in Chromatographic Columns
Fernandez, Erik; University of Virginia-Main Campus, Charlottesville, VA 22901
BCS 9210199 A000; 09/01/1992; $46,763; 36 mo.

Undergraduate Materials Education Initiative: Development and Implementation of a New Materials Synthesis and Processing Laboratory
Flemings, Merton; Rubner, Michael; Massachusetts Institute of Technology, Cambridge, MA 02139
DMR 9218128 A000; 10/01/1992; $350,000; 36 mo.
Jointly Funded with METALLURGY and CERAMICS $175,000

Third International Conference on Cell Culture Engineering; February 2-7, 1992, Palm Coast, Florida
Flickinger, Michael; United Engineering Trustees Inc., New York, NY 10017
BCS 9123680 A000; 01/01/1992; $15,000; 8 mo.

Flow Cytometric Study of Ciliate Physiology
Fredrickson, Arnold; Srienc, Friedrich; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 9001095 A003; 06/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000
BCS 9001095 A004; 06/01/1990; $80,880; 12 mo.

The Role of the Hydrophobic Effect in Protein Adsorption
Gast, Alice; Robertson, Channing; Stanford University, Stanford, CA 94305
BCS 9007866 A002; 09/01/1990; $92,033; 12 mo.

Presidential Young Investigator Award
Hammer, Daniel; Cornell University - Endowed, Ithaca, NY 14853
BCS 8958632 A003; 07/01/1989; $62,500; 12 mo.

Analysis and Optimization of Mycelial Fermentors
Hanley, Thomas; University of Louisville Research Foundation Inc., Louisville, KY 40292
BCS 9196147 A001; 05/01/1991; $57,503; 12 mo.

Presidential Young Investigator Award - Studies of Metabolism in Mammalian Cell and Tissue Cultures
Heath, Carole; Dartmouth College Thayer School of Engineering, Hanover, NH 03755
BCS 9157851 A001; 07/15/1991; $62,500; 12 mo.

Ultrapurification of Biomacromolecules
Horvath, Csaba; Engelman, Donald; Fox, Robert; Frey, Douglas; Randolph, Theodore; Yale University, New Haven, CT 06520
BCS 9014119 A002; 09/01/1990; $150,000; 12 mo.

Peptide-Grafted Materials for Cell-Adhesive and Growth-Promoting Substrates
Hubbell, Jeffrey; University of Texas at Austin, Austin, TX 78712
BCS 9009901 A001; 02/15/1991; $75,000; 12 mo.

Engineering Analysis of Microvascular Network Remodeling in Cerebral Tissue
Hudetz, Antal; Medical College of Wisconsin, Milwaukee, WI 53226
BCS 9001425 A003; 07/01/1990; $67,808; 12 mo.

Biomineralization Mimetics and Particle Synthesis in Microstructured Environments
John, Vijay; McPherson, Gary; O'Connor, Kim; Tulane University, New Orleans, LA 70118
BCS 9202123 A000; 09/01/1992; $348,000; 36 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $174,000

A Technique to Unfold and Refold Proteins Through Clathrate Hydrate Formation
John, Vijay; Tulane University, New Orleans, LA 70118
BCS 9218228 A000; 06/15/1992; $49,998; 12 mo.

Recurrent Neural Networks and Micro-Genetic Algorithms for Estimation and Optimization: Application to Bioprocesses
Karim, M. Nazmul; Colorado State University, Fort Collins, CO 80523
BCS 9118955 A000; 03/15/1992; $96,968; 12 mo.
Jointly Funded with NEUROENGINEERING and PROCESS AND REACTION ENGINEERING $50,000

Beverage Deoxygenation Through Electrochemically Regenerated Metal Chelates
Kerr, John; Aquanautics Corporation, Alameda, CA 94501
III 9161005 A000; 01/01/1992; $49,952; 6 mo.

Novel Chromatographic Supports: Methods and Processes
Kolesinski, Henry; Advanced Surface Technology Inc., Billerica, MA 01821
III 9160658 A000; 01/01/1992; $50,000; 6 mo.

Presidential Young Investigator Award: Design and Strategies for Optimizing Bioprocesses
Kompala, Dhinakar; University of Colorado at Boulder, Boulder, CO 80309
BCS 8857719 A007; 06/01/1988; $62,500; 12 mo.

Synthesis and Characterization of Polysaccharide Sorbents
Ladisch, Michael; Kvam, Eric; Westgate, Paul; Purdue University Research Foundation, West Lafayette, IN 47907
BCS 9202702 A000; 08/15/1992; $176,000; 24 mo.

Novel Degradable Polymers for Cellular Adhesion
Langer, Robert; Ingber, Donald; Vacanti, Joseph; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9202311 A000; 09/01/1992; $268,000; 24 mo.
Jointly Funded with BIOMEDICAL ENGINEERING $68,000

NSF Young Investigator
Lee, Cheng; University of Maryland-Baltimore County, Baltimore, MD 21228
BCS 9258652 A000; 09/01/1992; $25,000; 12 mo.

Protein Separations: A Thermodynamic Approach
Lenhoff, Abraham; Sandler, Stanley; Paulaitis, Michael; Kaler, Eric; University of Delaware, Newark, DE 19716
BCS 9210401 A000; 09/15/1992; $267,513; 12 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $100,000

Presidential Young Investigator Award
Linderman, Jennifer; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 8958319 A003; 07/01/1989; $37,500; 0 mo.
BCS 8958319 A004; 07/01/1989; $62,500; 12 mo.

Presidential Young Investigator Award
Lynd, Lee; Dartmouth College, Hanover, NH 03755
BCS 9058392 A002; 07/01/1990; $7,750; 3 mo.
BCS 9058392 A003; 07/01/1990; $62,500; 12 mo.

Presidential Young Investigator Award
McCarthy, Kathryn; University of California-Davis, Davis, CA 95616-8671
BCS 9057676 A002; 09/01/1990; $61,673; 12 mo.

Gel Permeation Chromatography and UV/VIS Systems for Bioengineering Research
Mikos, Antonios; Zygourakis, Kyriacos; Shanks, Jacqueline; William Marsh Rice University, Houston, TX 77252
BCS 9213197 A000; 08/15/1992; $26,567; 12 mo.

Biosensors for Tissue Engineering
Nair, Pankajam; Louisiana Tech University, Ruston, LA 71272
BCS 8913465 A005; 09/01/1989; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000

Reconstitution of a Blood Vessel in Culture
Nerem, Robert; Alexander, R. Wayne; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 9111761 A001; 09/01/1991; $178,461; 12 mo.
Jointly Funded with BIOMEDICAL ENGINEERING $29,487

Understanding Injury of Suspended Animal Cells in Mixed Bioreactors Due to Bubble Breakup
Papoutsakis, Eleftherios; Northwestern University, Evanston, IL 60208
BCS 9022472 A001; 07/01/1991; $5,000; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $3,750
BCS 9022472 A002; 07/01/1991; $93,936; 12 mo.

Presidential Young Investigator Award
Peretti, Steven; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
BCS 9157913 A001; 09/15/1991; $62,500; 12 mo.

Hindered Transport of Macromolecules in Fibrous Gels
Phillips, Ronald; University of California-Davis, Davis, CA 95616-8671
BCS 9209322 A000; 08/01/1992; $100,000; 36 mo.

Directed Metabolic Flow by Cellular Reduction State Control
Rao, Govind; University of Maryland-Baltimore County, Baltimore, MD 21228
BCS 8911957 A002; 10/15/1989; $49,476; 12 mo.

Presidential Young Investigator Award
Rao, Govind; University of Maryland-Baltimore County, Baltimore, MD 21228
BCS 9157852 A001; 07/15/1991; $34,500; 12 mo.

Phase Fluorometric Sensors
Rao, Govind; Lakowicz, Joseph; Carter, Gary; University of Maryland-Baltimore County, Baltimore, MD 21228
BCS 9209157 A000; 09/01/1992; $176,807; 12 mo.

Formation Mechanisms and Fabrication Strategies for Molecularly Aligned Two- and Three-Dimensional Protein Arrays
Robertson, Channing; Gast, Alice; Kornberg, Roger; Darst, Seth; Stanford University, Stanford, CA 94305
BCS 9202220 A000; 09/01/1992; $307,000; 24 mo.
Jointly Funded with SPECIAL PROGRAMS and BIOPHYSICS $153,500

Presidential Young Investigator Award
Russell, Alan; University of Pittsburgh, Pittsburgh, PA 15260
BCS 9057312 A002; 09/01/1990; $62,500; 12 mo.

Gel Permeation Chromatograph
Russell, Alan; Beckman, Eric; University of Pittsburgh, Pittsburgh, PA 15260
BCS 9212115 A000; 09/01/1992; $58,436; 12 mo.

Determination of Genetic and Kinetic Parameters of Primary Importance to the Productivity of Recombinant Organisms
Ryu, Dewey; University of California-Davis, Davis, CA 95616-8671
BCS 9011487 A002; 08/01/1990; $60,252; 12 mo.

Manipulation of Cell Behavior in Three-Dimensional Culture
Saltzman, William; Johns Hopkins University, Baltimore, MD 21218
BCS 9123070 A000; 05/15/1992; $61,571; 12 mo.
Jointly Funded with BIOTECHNOLOGY and BIOMEDICAL ENGINEERING $41,047

Growth and Protein Expression of Eukaryotic Cells
Srienc, Friedrich; University of Minnesota-St. Paul, Minneapolis, MN 55455
BCS 9100385 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
BCS 9100385 A002; 07/01/1991; $89,883; 12 mo.

Engineering Research Equipment-Elutriation Centrifuge
Srienc, Friedrich; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 9212806 A000; 09/15/1992; $25,517; 12 mo.

Molecular Mechanism of Adsorption and Structural Behavior of Proteins at Interfaces
Srinivasan, Damodaran; University of Wisconsin-Madison, Madison, WI 53706
BCS 8913053 A002; 01/01/1990; $55,953; 12 mo.

Combined Fungal Solid Substrate Fermentation and Ensiling
Tengerdy, Robert; Colorado State University, Fort Collins, CO 80523
BCS 9115515 A000; 04/01/1992; $96,443; 24 mo.

Biorheology of Hybridomas and Cell Damage
Tran-Son-Tay, Roger; Needham, David; Duke University, Durham, NC 27708
BCS 9106452 A001; 09/01/1991; $114,274; 12 mo.

US-China Engineering Conference on Bioreactions and Bioseparations - Travel Grant Request
Tsao, George; Purdue University, West Lafayette, IN 47907
BCS 9213842 A000; 06/01/1992; $5,000; 7 mo.
Jointly Funded with BIOTECHNOLOGY $2,500

Novel Membrane-Based Process for the Production of Substituted Benzyl Alcohols
van Eikeren, Paul; Bend Research Inc., Bend, OR 97701-8599
III 9122743 A000; 08/15/1992; $249,977; 24 mo.

Biosynthesis and Downstream Recovery of Therapeutic Proteins from the Milk of Transgenic Animals
Velander, William; Drohan, William; Johnson, John; Orthner, Carolyn; Young, Janet; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
BCS 9011098 A002; 07/15/1990; $140,000; 12 mo.

Preparative Ultracentrifuge to Enhance Biochemical Engineering Research
Wheatley, Margaret; Drexel University, Philadelphia, PA 19104
BCS 9212490 A000; 09/15/1992; $46,540; 12 mo.

Bioprocess Engineering: Research Priorities and Policy Options
Zaborsky, Oskar; National Academy of Sciences, Washington, DC 20418
BCS 9017115 A004; 09/01/1990; $25,000; 0 mo.
Jointly Funded with ENERGY-BIOFUELS PROGRAM PLAN $25,000

Marine Biotechnology: Research Opportunities and Policy Issues
Zaborsky, Oskar; National Academy of Sciences, Washington, DC 20418
IBN 9211798 A000; 05/01/1992; $90,000; 14 mo.
Jointly Funded with BIOTECHNOLOGY $5,000

Biomedical Engineering

BAC: Perceptual and Motor Control Mechanisms in Visual Tracking
Abel, Larry; Chen, Yaobin; Indiana University-Bloomington, Bloomington, IN 47405
BCS 9216578 A000; 09/01/1992; $128,166; 24 mo.
Jointly Funded with SPECIAL PROGRAMS $32,041

Neural Waveform Analysis in Extracellular Recordings
Bankman, Isaac; Johns Hopkins University, Baltimore, MD 21218
BCS 9222785 A000; 09/01/1992; $5,200; 6 mo.

Human and Robot Models for Intelligent Prosthetic Hands
Bekey, George; Iberall, Thea; University of Southern California, Los Angeles, CA 90089
BCS 9009934 A003; 07/15/1990; $75,000; 12 mo.
Jointly Funded with ROBOTICS AND MACHINE INTELLIGE $25,000

Conference on Tissue Engineering: A Perspective
Bell, Eugene; Keystone Center, Dillon, CO 80435
BCS 9116310 A000; 01/01/1992; $15,000; 12 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $5,045

RUI: Ontogeny of Modulation of Dentate Granule Cell Excitability in the Freely Moving Rat
Bronzino, Joseph; Trinity College, Hartford, CT 06106
BCS 9010616 A002; 08/01/1990; $6,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $3,000

Microbiosensors to Evaluate Free Radical Activity in Tissue
Buerk, Donald; University of Pennsylvania, Philadelphia, PA 19104
BCS 9196021 A002; 09/01/1990; $5,000; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $3,750
BCS 9196021 A003; 09/01/1990; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Pathogenesis of Device-Related Infections
Cooper, Stuart; Mosher, Deane; Proctor, Richard; University of Wisconsin-Madison, Madison, WI 53706
BCS 9120660 A001; 09/01/1991; $168,000; 12 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $84,000

BAC: Sensory Feedback and Control of Legged Locomotion: Biological Simulation and Robotic Implementation
Delcomyn, Fred; Ahuja, Narendra; Nelson, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9216562 A000; 09/15/1992; $157,972; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $118,479

A Speech Driven Computer Interface Based on Neural Networks
deVries, Bert; NeuroDimension Inc., Gainesville, FL 32601
III 9160161 A000; 01/15/1992; $50,000; 6 mo.

Materials Characterization and Bone Growth Conduction of Calcium Phosphate Linings on Porous Titanium
Ducheyne, Paul; University of Pennsylvania, Philadelphia, PA 19104
BCS 9010531 A002; 08/01/1990; $68,046; 12 mo.

Bioactive Material Template Surfaces for In Vitro Synthesis of Bone Tissue
Ducheyne, Paul; Pollack, Solomon; Bonnell, Dawn; Shapiro, Irving; University of Pennsylvania, Philadelphia, PA 19104
BCS 9202314 A000; 09/01/1992; $200,000; 12 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG and BIOTECHNOLOGY $50,000

A Textbook on Engineering Senior Design Projects for the Handicapped
Enderle, John; North Dakota State University-Main Campus, Fargo, ND 58105
BCS 8802898 A004; 06/15/1988; $25,555; 12 mo.

Biomechanical Foundation of Tissue Engineering of Arteries and Veins
Fung, Yuan-Cheng; University of California-San Diego, San Diego, CA 92093
BCS 8917576 A002; 03/01/1990; $80,000; 12 mo.

Computational Investigations of Pulmonary Airway Clearance
Gaver, Donald; Tulane University, New Orleans, LA 70118
BCS 9209558 A000; 08/15/1992; $99,973; 36 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $49,986

Interfacial Fluid Dynamics of the Lung
Grotberg, James; Northwestern University, Evanston, IL 60208
CTS 9013083 A002; 08/01/1991; $98,260; 12 mo.

Effects of Mineral-Organic Bonding Forces on the Mechanical Properties of Bone Tissue
Guzelsu, Nejat; Berg, R.; University of Medicine and Dentistry of New Jersey, Newark, NJ 07103
BCS 9210253 A000; 09/01/1992; $81,242; 12 mo.

Optimizing Information Transfer Characteristics of Tomographic Imaging Systems
Hero, Alfred; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9024370 A001; 05/01/1991; $60,000; 12 mo.

Perspectives and Opportunities in Bioengineering. Conference to be held October 16-18, 1992 in Salt Lake City, Utah
Horch, Kenneth; Andrade, Joseph; University of Utah, Salt Lake City, UT 84112
BCS 9221313 A000; 08/15/1992; $5,000; 6 mo.

Presidential Young Investigator Award - Basic Studies in Vascular Mechanics
Humphrey, Jay; University of Maryland-Baltimore County, Baltimore, MD 21228
BCS 9157798 A001; 07/01/1991; $55,120; 12 mo.

Undergraduate Designs for Rehabilitation Engineering
Hyman, William; Miller, Gerald; Texas A&M University-Main Campus, College Station, TX 77843
BCS 8805377 A004; 06/01/1988; $16,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $8,000

Adaptive Control of Drug Delivery Based on Sparse Measurements: Recursive Bayesian Estimation Forecasting and Sampling
Jannett, Thomas; University of Alabama at Birmingham, Birmingham, AL 35294
BCS 9210341 A000; 09/01/1992; $60,000; 24 mo.

Quantitative Imaging of Regional Pulmonary Blood Flow
Knight, Herbert; University of Virginia-Main Campus, Charlottesville, VA 22901
BCS 9154521 A000; 01/15/1992; $12,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $12,000

Presidential Young Investigator Award
Ku, David; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 8657691 A007; 08/01/1987; $37,500; 0 mo.

BAC: Cooperation and Coordination of Two Arms in Biological and Robotic Systems
Kumar, Vijay; Yun, Xiaoping; Henis, Ealan; University of Pennsylvania, Philadelphia, PA 19104
BCS 9216691 A000; 09/15/1992; $80,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS and ROBOTICS AND MACHINE INTELLIGE $20,000

Novel Degradable Polymers for Cellular Adhesion
Langer, Robert; Ingber, Donald; Vacanti, Joseph; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9202311 A000; 09/01/1992; $268,000; 24 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $100,000

Development of Bioerodible Polymer Matrices for Osteoblast Growth and Maturation
Laurencin, Cato; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9011170 A003; 07/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $7,500
BCS 9011170 A004; 07/01/1990; $75,000; 12 mo.

Fracture Mechanics of Articular Cartilage
Lewis, Jack; Keer, Leon; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 9022052 A001; 09/15/1991; $100,000; 12 mo.
Jointly Funded with MATERIALS ENGINEERING and RESEARCH TO AID THE DISABLED $100,000

Transcatheter Microwave Technology for Treatment of Cardiovascular Diseases
Lin, James; University of Illinois at Chicago, Chicago, IL 60680
BCS 9110184 A001; 09/15/1991; $75,447; 12 mo.

Experiment Design and Analysis for Identifying Mechanical Properties of Physiological Systems at Low Frequencies
Lutchen, Kenneth; Boston University, Boston, MA 02215
BCS 9011168 A003; 08/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000
BCS 9011168 A004; 08/15/1990; $59,927; 12 mo.

Computational Neuroscience Symposium, October 17, 1992
Madhavan, P.; Indiana University-Bloomington, Bloomington, IN 47405
BCS 9218886 A000; 08/01/1992; $2,620; 12 mo.

Presidential Young Investigator Award - Three-Dimensional Mechanics and Electrical Dynamics of the Heart
McCulloch, Andrew; University of California-San Diego, San Diego, CA 92093
BCS 9157961 A001; 09/15/1991; $25,000; 12 mo.

Presidential Young Investigator Award
Miller, Michael; Washington University, St. Louis, MO 63130
BCS 8552518 A007; 09/15/1986; $37,500; 0 mo.

Engineering Techniques for Modeling Left Ventricular Energetics During Regional Myocardial Dysfunctions: Effects of Cardiac Assistance
Moore, Thomas; Drexel University, Philadelphia, PA 19104
BCS 9022060 A002; 04/15/1991; $65,000; 12 mo.

Reconstitution of a Blood Vessel in Culture
Nerem, Robert; Alexander, R. Wayne; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 9111761 A001; 09/01/1991; $178,461; 12 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $29,487

Research on Doppler Three-Dimensional Vector and Capillary Flow Measurement
Newhouse, Vernon; Drexel University, Philadelphia, PA 19104
BCS 9201877 A000; 09/01/1992; $80,810; 12 mo.

New Medically Useful, Ionically Modified Lactide/Glycolide Polymers
Nichols, Larry; BIOTEK Inc., Woburn, MA 01801
III 9160209 A000; 01/01/1992; $50,000; 6 mo.

Presidential Young Investigator Award
Nishimura, Dwight; Stanford University, Stanford, CA 94305
BCS 9058556 A002; 09/01/1990; $62,500; 12 mo.

Reflectance from Layered Biological Materials
Ostrander, Lee; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
BCS 9008533 A002; 08/15/1990; $65,000; 12 mo.

Visualization in Biomedical Computing 1992
Pizer, Stephen; University of North Carolina at Chapel Hill, Chapel Hill, NC 27514
BCS 9212648 A000; 08/15/1992; $10,000; 12 mo.
Jointly Funded with INSTRUMENTAT AND INSTRUMENT DEVP $5,000

Calcium Ion Resonance in Bone Cells
Pollack, Solomon; University of Pennsylvania, Philadelphia, PA 19104
BCS 8921492 A002; 07/01/1990; $84,635; 12 mo.

BAC: Neural Optimization Algorithms in Respiratory Control
Poon, Chi-Sang; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9216419 A000; 09/01/1992; $67,385; 12 mo.

Covalent Immobilization of Proteins and Bioactive Peptides on Orthopedic Biomaterials
Puleo, David; Kentucky Research Foundation, Lexington, KY 40506
BCS 9210511 A000; 09/01/1992; $96,339; 36 mo.

Presidential Young Investigator Award
Rabbitt, Richard; Washington University, St. Louis, MO 63130
BCS 8957206 A004; 07/01/1989; $25,000; 12 mo.

Engineering Research Equipment: Integrated Human Motion Measurement System
Raftopoulos, Demetrios; Hefzy, Mohamed; Armstrong, Charles; Jackson, W.T.; University of Toledo, Toledo, OH 43606
BCS 9111728 A000; 03/15/1992; $49,995; 12 mo.

Biomagnetic Imaging of Three-Dimensional Current Distribution
Ramon, Ceon; Marks, Robert; Oh, Seho; Spelman, Francis; University of Washington, Seattle, WA 98195
BCS 9209938 A000; 09/01/1992; $99,046; 12 mo.

Presidential Young Investigator Award
Richards-Kortum, Rebecca; University of Texas at Austin, Austin, TX 78712
BCS 9157202 A001; 07/15/1991; $37,500; 6 mo.

Presidential Faculty Fellow - Optical Spectroscopy in Bioengineering
Richards-Kortum, Rebecca; University of Texas at Austin, Austin, TX 78712
BCS 9253612 A000; 09/01/1992; $100,000; 12 mo.

Manipulation of Cell Behavior in Three-Dimensional Culture
Saltzman, William; Johns Hopkins University, Baltimore, MD 21218
BCS 9123070 A000; 05/15/1992; $61,571; 12 mo.
Jointly Funded with BIOTECHNOLOGY $20,523

A System for Measuring Capillary Blood Flow and Organ Perfusion Using Doppler Ultrasound Aided by Contrast Enhancement
Schrope, Beth; RESHET Inc., Philadelphia, PA 19104
III 9161006 A000; 01/15/1992; $48,886; 6 mo.

Use of Non-Rayleigh Statistics for Ultrasonic Tissue Characterization
Shankar, P.; Reid, James; Drexel University, Philadelphia, PA 19104
BCS 9207385 A000; 09/01/1992; $81,273; 12 mo.

BAC: Signal Processing and Target Images for Spatial Perception in Bat Sonar
Simmons, James; Dear, Steven; Brown University, Providence, RI 02912
BCS 9216718 A000; 09/15/1992; $127,302; 24 mo.
Jointly Funded with SPECIAL PROGRAMS $31,825

Finite Strain, Poroelastic Model for Large Arteries
Simon, Bruce; Baldwin, A.; University of Arizona, Tucson, AZ 85721
BCS 9210282 A000; 08/15/1992; $66,989; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,485

Research in High-Resolution Ultrasound Mammography
Steinberg, Bernard; University of Pennsylvania, Philadelphia, PA 19104
BCS 9209680 A000; 09/15/1992; $90,076; 12 mo.

Bone Bonding to HA Coated Strain Gauges: Development of a Faster Bonding Coating
Szivek, John; University of Arizona College of Medicine, Tucson, AZ 85721
BCS 9207348 A000; 08/15/1992; $199,986; 36 mo.

Workshop on Surgical Robotics
Taylor, Russell; IBM Thomas J. Watson Research Center, Yorktown Heights, NY 10598
BCS 9222082 A000; 09/15/1992; $6,250; 12 mo.

Workshop: Critical Issues in Life Cycle Design of Biomedical Engineering Products; Stanford University, January 20-22, 1993
Waldron, Manjula; Ohio State University Research Foundation, Columbus, OH 43210
DDM 9222243 A000; 09/15/1992; $18,800; 12 mo.

NSF Young Investigator - Infrared Laser Tissue Ablation
Walsh, Joseph; Northwestern University, Evanston, IL 60208
BCS 9257492 A000; 09/01/1992; $25,000; 12 mo.

A Study of the Bone-Prosthesis Interface by Vibrational Spectroscopy
Walters, Marc; New York University, New York, NY 10012
BCS 9010607 A001; 09/01/1990; $75,135; 12 mo.

Multielectrode Impedance-Based Ventilation Monitoring
Webster, John; Tompkins, Willis; University of Wisconsin-Madison, Madison, WI 53706
BCS 9012782 A002; 08/01/1990; $80,000; 12 mo.

Time-Frequency Analysis of Biomedical Signals
Williams, William; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9110571 A001; 09/15/1991; $62,807; 12 mo.

Modeling the Cardiac Sinus Node and Atrium on a Massively Parallel Computer
Winslow, Raimond; Johns Hopkins University School of Medicine, Baltimore, MD 21218
BIR 9117847 A000; 07/01/1992; $107,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS and COMPUTATIONAL MATHEMATICS $50,000

NSF Young Investigator - Acoustical Techniques to Anatomical Structures and Physiological Processes
Wodicka, George; Purdue University Research Foundation, West Lafayette, IN 47907
BCS 9257488 A000; 09/01/1992; $25,000; 12 mo.

Presidential Faculty Fellow
Yue, David; Johns Hopkins University, Baltimore, MD 21218
BCS 9253539 A000; 09/15/1992; $100,000; 12 mo.

Intravenous Coronary Angiography Utilizing K-Emission and Bremsstrahlung X-Rays Produced by Electron Bombardment
Zeman, Herbert; University of Tennessee, Memphis, TN 38163
BCS 9108883 A001; 08/15/1991; $73,000; 12 mo.

Modeling of Transient Processes in Cell Adhesion
Zhu, Cheng; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 9210684 A000; 09/01/1992; $70,000; 24 mo.

BAC: Systems Modeling of Endothelial Cell Migration and Proliferation
Zygourakis, Kyriacos; McIntire, Larry; Markenscoff, Pauline; Eskin, S.; William Marsh Rice University, Houston, TX 77252
BCS 9216454 A000; 09/15/1992; $85,000; 12 mo.

Biotechnology

Presidential Young Investigator Award
Arnold, Frances; California Institute of Technology, Pasadena, CA 91125
BCS 8957118 A002; 11/01/1989; $62,500; 12 mo.
BCS 8957118 A003; 11/01/1989; $16,786; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $8,393

Selective Polymers for Protein Separations: Investigation of Novel Template Polymerization Techniques
Arnold, Frances; Baldeschwieler, John; California Institute of Technology, Pasadena, CA 91125
BCS 9108502 A001; 08/15/1991; $163,053; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $81,526

Measuring Metabolic Fluxes: Applications for Elucidating Energetics and Regulation
Ataai, Mohammad; Domach, Michael; University of Pittsburgh, Pittsburgh, PA 15260
BCS 9207614 A000; 09/15/1992; $76,302; 12 mo.

Metabolic Engineering of Aerobic Glucose Catabolism in Escherichia Coli
Bailey, James; Lidstrom, Mary; California Institute of Technology, Pasadena, CA 91125
BCS 8912824 A003; 09/01/1989; $233,090; 12 mo.

Conference on Tissue Engineering: A Perspective
Bell, Eugene; Keystone Center, Dillon, CO 80435
BCS 9116310 A000; 01/01/1992; $15,000; 12 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG and BIOMEDICAL ENGINEERING $9,954

Enzyme Design and Catalytic Function for the Production of Novel Materials
Blanch, Harvey; Clark, Douglas; Schultz, Peter; Bednarski, Mark; University of California-Berkeley, Berkeley, CA 94720
BCS 9119237 A000; 09/15/1992; $217,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS and MACROMOLECULAR BIOCHEMISTRY $50,000

Cellular Mechanisms of Neurite Outgrowth and Guidance
Buettner, Helen; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
BCS 9210540 A000; 08/01/1992; $99,956; 36 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG and CROSS-DIRECTORATE PROGRAMS $63,808

Engineering Foundations Sixth Conference on the Recovery of Biological Products
Builder, Stuart; United Engineering Trustees Inc., New York, NY 10017
BCS 9216393 A000; 06/15/1992; $15,000; 12 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $7,500

Minimizing the Genome of Escherichia Coli
Cameron, Douglas; Koob, Michael; University of Wisconsin-Madison, Madison, WI 53706
BCS 9205918 A000; 03/15/1992; $41,930; 12 mo.
Jointly Funded with PROKARYOTIC GENETICS $20,000

Presidential Young Investigator Award: Cell Interactions with Biomaterials
Cima, Linda; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9157321 A000; 11/01/1991; $25,000; 12 mo.

Optimized Overproduction by Genetically Modified Cells Using Selective Cell Separation Technology
Davis, Robert; Kompala, Dhinakar; Ramirez, W. Fred; Gold, Lawrence; Sclafani, Robert; University of Colorado at Boulder, Boulder, CO 80309
BCS 8912259 A006; 09/01/1989; $13,150; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $9,862

Continuous Flow Strategies for In Vitro RNA Synthesis
Davis, Robert; Gold, Lawrence; Uhlenbeck, Olke; Ramirez, W. Fred; Pardi, Arthur; University of Colorado at Boulder, Boulder, CO 80309
BCS 9206383 A000; 03/15/1992; $49,998; 12 mo.
Jointly Funded with MACROMOLECULAR BIOCHEMISTRY $21,500

Presidential Young Investigator Award
Dhurjati, Prasad; University of Delaware, Newark, DE 19716
BCS 8552492 A008; 07/01/1986; $47,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Intracellular Signaling in Mammalian Cells Induced by Physical Forces
Diamond, Scott; SUNY at Buffalo, Amherst, NY 14228
BCS 9211197 A000; 08/01/1992; $94,883; 36 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $47,441

Measuring Metabolic Fluxes: Applications for Elucidating Energetics and Regulations
Domach, Michael; Carnegie-Mellon University, Pittsburgh, PA 15213
BCS 9222557 A000; 09/15/1992; $63,688; 12 mo.

Bioactive Material Template Surfaces for In Vitro Synthesis of Bone Tissue
Ducheyne, Paul; Pollack, Solomon; Bonnell, Dawn; Shapiro, Irving; University of Pennsylvania, Philadelphia, PA 19104
BCS 9202314 A000; 09/01/1992; $200,000; 12 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $25,000

Viscous Fingering in Chromatographic Columns
Fernandez, Erik; University of Virginia-Main Campus, Charlottesville, VA 22901
BCS 9210199 A000; 09/01/1992; $46,763; 36 mo.

Undergraduate Materials Education Initiative: Development and Implementation of a New Materials Synthesis and Processing Laboratory
Flemings, Merton; Rubner, Michael; Massachusetts Institute of Technology, Cambridge, MA 02139
DMR 9218128 A000; 10/01/1992; $350,000; 36 mo.
Jointly Funded with METALLURGY and CERAMICS $175,000

Third International Conference on Cell Culture Engineering; February 2-7, 1992, Palm Coast, Florida
Flickinger, Michael; United Engineering Trustees Inc., New York, NY 10017
BCS 9123680 A000; 01/01/1992; $15,000; 8 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $7,500

Regulation, Control and Design of Plant Root Systems for Production of Valuable Chemicals
Flores, Hector; Curtis, Wayne; Pennsylvania State Univ.-University Park, University Park, PA 16801
BCS 9110288 A001; 09/15/1991; $186,900; 12 mo.

Presidental Young Investigator Award
Frangos, John; Pennsylvania State Univ.-University Park, University Park, PA 16801
BCS 9058011 A002; 11/01/1990; $25,000; 12 mo.
BCS 9058011 A003; 11/01/1990; $37,500; 0 mo.

Engineering of Bacterial Surfaces
Georgiou, George; Iverson, Brent; Earhart, Charles; University of Texas at Austin, Austin, TX 78712
BCS 9212305 A000; 08/01/1992; $144,020; 12 mo.

Genetic Engineering for Product Using Non-Chromatographic Methods
Glatz, Charles; Ford, Clark; Honzatko, Richard; Iowa State University, Ames, IA 50011
BCS 9108583 A001; 09/01/1991; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $5,000
BCS 9108583 A002; 09/01/1991; $181,295; 12 mo.

Presidential Young Investigator Award
Goochee, Charles; Stanford University, Stanford, CA 94305
BCS 8857712 A005; 01/01/1989; $62,500; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $5,000
BCS 8857712 A006; 01/01/1989; $10,000; 0 mo.

Use of Insect Cell Culture for Production of Proteins and Viral Pesticides
Granados, Robert; Wood, Harry; Boyce Thompson Inst. of Plant Res., Ithaca, NY 14853
BCS 9208905 A000; 02/01/1992; $109,100; 12 mo.

A Two Dimensional Multi-Channel Bio-Polymer Purification System
Hansen, Marcia; FFFractionation Inc., Salt Lake City, UT 84119-1449
III 9160420 A000; 01/01/1992; $50,000; 6 mo.

Kinetics of Growth and Product Formation 1n Hairy Root Cultures
Hjortso, Martin; Evans, Phillip; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
BCS 9024412 A001; 08/01/1991; $118,759; 12 mo.

Kinetic Studies and Modelling of Interactions of Nutrient, Hormone, Growth Rate and Form Change in Carrot Embryo Development
Hu, Wei-Shou; Staba, E. John; Cooke, Todd; University of Minnesota-St. Paul, Minneapolis, MN 55455
BCS 9015817 A001; 04/15/1991; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750
BCS 9015817 A002; 04/15/1991; $110,515; 12 mo.
Presidential Young Investigator Award
Hubbell, Jeffrey; University of Texas at Austin, Austin, TX 78712
BCS 9057641 A001; 11/01/1990; $62,500; 12 mo.

Engineering Research Equipment: Optical Techniques in Bio-Technology - Flow Cytometer and Image Processor Upgrade
Hubbell, Jeffrey; Heller, Adam; Georgiou, George; University of Texas at Austin, Austin, TX 78712
BCS 9211994 A000; 09/01/1992; $83,000; 12 mo.

Large Scale Displacement High Performance Liquid Chromatography for Separation of Peptides and Proteins
Jacobson, Jana; BioWest Research, Grand Junction, CO 81502
III 9106502 A000; 06/15/1992; $258,237; 24 mo.

Proteases from Hyperthermophilic Archaebacteria: Physiological, Genetic, Biochemical and Engineering Studies
Kelly, Robert; Johns Hopkins University, Baltimore, MD 21218
BCS 9011583 A003; 09/01/1990; $143,868; 0 mo.

Proteases from Hyperthermophilic Archaebacteria: Physiological, Genetic, Biochemical and Engineering Studies
Kelly, Robert; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
BCS 9396025 A000; 09/01/1992; $253,400; 11 mo.

Novel Synthesis of New Natural Products via Genetic Engineering
Khosla, Chaitan; Stanford University, Stanford, CA 94305
BCS 9209901 A000; 08/01/1992; $100,000; 36 mo.

A Fundamental Engineering Approach to Integrated Bioproduct Recovery, Separation and Monitoring for Large Scale Protein Purification
Ladisch, Michael; Regnier, Fred; Tsao, George; Wang, Nien-Hwa Linda; Purdue University Research Foundation, West Lafayette, IN 47907
BCS 8912150 A002; 12/15/1989; $297,956; 12 mo.

Novel Degradable Polymers for Cellular Adhesion
Langer, Robert; Ingber, Donald; Vacanti, Joseph; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9202311 A000; 09/01/1992; $268,000; 24 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG and BIOMEDICAL ENGINEERING $168,000

Engineering Growth Factor/Receptor Processes
Lauffenburger, Douglas; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9111940 A001; 09/01/1991; $15,000; 0 mo.
BCS 9111940 A002; 09/01/1991; $221,613; 12 mo.

Specific Antibody Production in Plant Cell Cultures
Lee, James; Reeves, Raymond; An, Gynheung; Magnuson, Nancy; Washington State University, Pullman, WA 99164-3140
BCS 9019522 A001; 03/01/1991; $149,532; 12 mo.

Research Initiation Awards: Enhanced Micellar Electrokinetic Capillary Chromatography for Bioseparations
Lee, Cheng; University of Maryland-Baltimore County, Baltimore, MD 21228
CTS 9108875 A001; 07/15/1991; $10,000; 0 mo.

Presidential Young Investigator Award
Miller, William; Northwestern University, Evanston, IL 60208
BCS 9058416 A002; 11/01/1990; $62,500; 12 mo.
BCS 9058416 A003; 11/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $5,000

Presidential Young Investigator Award
Murphy, Regina; University of Wisconsin-Madison, Madison, WI 53706
BCS 9057661 A001; 11/01/1990; $62,500; 12 mo.

Reconstitution of a Blood Vessel in Culture
Nerem, Robert; Alexander, R. Wayne; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 9111761 A001; 09/01/1991; $178,461; 12 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG and BIOMEDICAL ENGINEERING $58,974

Efficient Monoclonal Antibody Production
Palsson, Bernhard; Savageau, Michael; Midgley, A. Rees; Meyerhoff, Mark; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9009389 A001; 11/15/1990; $205,982; 12 mo.

Genetic Analysis and Metabolic Engineering of Anaerobic Butyric-Acid Clostridia
Papoutsakis, Eleftherios; Bennett, George; Rudolph, Frederick; William Marsh Rice University, Houston, TX 77252
BCS 8912094 A005; 10/01/1989; $10,000; 8 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Genetic Analysis and Metabolic Engineering of Anaerobic Butyric-Acid Clostridia
Papoutsakis, Eleftherios; Welker, Neil; Northwestern University, Evanston, IL 60208
BCS 8912209 A004; 09/01/1989; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $5,000

Genetic Analysis and Metabolic Engineering of Solventogenic Clostridia
Papoutsakis, Eleftherios; Rudolph, Frederick; Bennett, George; William Marsh Rice University, Houston, TX 77252
BCS 9209627 A000; 09/15/1992; $130,927; 12 mo.

Genetic Analysis and Metabolic Engineering of Solventogenic Clostridia
Papoutsakis, Eleftherios; Welker, Neil; Northwestern University, Evanston, IL 60208
BCS 9210108 A000; 09/15/1992; $153,652; 12 mo.

Presidential Young Investigator Award: Spectroscopic Studies of Proteins in Engineering Environments
Randolph, Theodore; Yale University, New Haven, CT 06520
BCS 9157318 A000; 11/01/1991; $25,000; 12 mo.
BCS 9157318 A001; 11/01/1991; $37,500; 0 mo.

Manipulation of Cell Behavior in Three-Dimensional Culture
Saltzman, William; Johns Hopkins University, Baltimore, MD 21218
BCS 9123070 A000; 05/15/1992; $61,571; 12 mo.
Jointly Funded with BIOMEDICAL ENGINEERING $20,524

Use of Insect Cell Culture for Production of Proteins and Viral Pesticides
Shuler, Michael; Hammer, Daniel; Granados, Robert; Wood, Harry; Cornell University - Endowed, Ithaca, NY 14853
BCS 9111091 A000; 02/15/1992; $155,932; 12 mo.

Continuous Production of Alkaloids from Immobilized Catharanthus Roseus
Shuler, Michael; Cornell University - Endowed, Ithaca, NY 14853
BCS 9117252 A000; 03/01/1992; $179,532; 24 mo.

Presidential Young Investigator Award
Stokes, Cynthia; University of Houston, Houston, TX 77204
BCS 9157783 A000; 11/01/1991; $25,000; 12 mo.

Biorheology of Hybridomas and Cell Damage
Tran-Son-Tay, Roger; Needham, David; Duke University, Durham, NC 27708
BCS 9106452 A001; 09/01/1991; $114,274; 12 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $57,137

Presidential Young Investigator Award
Tranquillo, Robert; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 8957736 A002; 11/01/1989; $70,764; 12 mo.

US-China Engineering Conference on Bioreactions and Bioseparations - Travel Grant Request
Tsao, George; Purdue University, West Lafayette, IN 47907
BCS 9213842 A000; 06/01/1992; $5,000; 7 mo.

Spinning Natural and Genetically Engineered Silk: Advancing Liquid Crystalline Polymer Technology
Viney, Christopher; Yager, Paul; University of Washington, Seattle, WA 98195
BCS 9202007 A000; 08/15/1992; $146,000; 12 mo.
Jointly Funded with POLYMERS $73,000

Presidential Young Investigator Award
Wittrup, K. Dane; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9057677 A001; 11/01/1990; $62,500; 12 mo.

Enhanced Bioremediation Using Genetically Engineered Microbes
Wood, Thomas; University of California-Irvine, Irvine, CA 92717
BCS 9210619 A000; 09/01/1992; $34,359; 12 mo.
Jointly Funded with ENVIRONMENTAL ENGINEERING $15,460

Engineering Research Equipment: Capillary Electrophoresis
Yang, Shang-Tian; Ohio State University Research Foundation, Columbus, OH 43210
BCS 9212985 A000; 09/01/1992; $20,550; 12 mo.

Presidential Young Investigator Award
Yarmush, Martin; Rutgers University-New Brunswick, New Brunswick, NJ 08903
BCS 8857513 A004; 09/15/1988; $62,500; 12 mo.

Marine Biotechnology: Research Opportunities and Policy Issues
Zaborsky, Oskar; National Academy of Sciences, Washington, DC 20418
IBN 9211798 A000; 05/01/1992; $90,000; 14 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $5,000

BAC: Systems Modeling of Endothelial Cell Migration and Proliferation
Zygourakis, Kyriacos; McIntire, Larry; Markenscoff, Pauline; Eskin, S.; William Marsh Rice University, Houston, TX 77252
BCS 9216454 A000; 09/15/1992; $85,000; 12 mo.

Research to Aid the Disabled

Ontogeny of Modulation of Dentate Granule Cell Excitability in the Freely Moving Rat
Bronzino, Joseph; Trinity College, Hartford, CT 06106
BCS 9208128 A000; 09/15/1992; $60,500; 12 mo.

BAC: Neural Network Control of Oscillatory Movements of Multi-Segmented Musculoskeletal Systems
Chizeck, Howard; Abbas, James; Case Western Reserve University, Cleveland, OH 44106
BCS 9216697 A000; 09/01/1992; $95,129; 12 mo.

Microstructural Modeling of the Bone Implant Interface
Cowin, Stephen; Sadegh, Ali; CUNY-City College, New York, NY 10031
BCS 9103236 A001; 08/01/1991; $8,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $8,000
BCS 9103236 A002; 08/01/1991; $70,622; 12 mo.

Variable Volume Socket for Limb Prostheses
Dean, Robert; Dean Technology Inc., Hanover, NH 03755
III 9161011 A000; 01/01/1992; $49,990; 6 mo.

NSF Young Investigator - Computer Simulation of Human Movement
Delp, Scott; Northwestern University, Evanston, IL 60208
BCS 9257229 A000; 09/01/1992; $25,000; 12 mo.

Mechanisms of Neuronal Excitation by Magnetically Induced Currents
Durand, Dominique; Case Western Reserve University, Cleveland, OH 44106
BCS 9111503 A001; 08/15/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $5,000
BCS 9111503 A002; 08/15/1991; $79,000; 12 mo.

New Technologies for the Blind: Improving Accessibility to Science
Gardner, John; Oregon State University, Corvallis, OR 97331-5503
HRD 9220322 A000; 09/15/1992; $102,794; 12 mo.
Jointly Funded with UNDERGRAD INSTRM AND LAB IMPROVE and CROSS-DIRECTORATE PROGRAMS $42,000

Presidential Young Investigator Award
Gray, Martha; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9158507 A001; 07/15/1991; $62,500; 12 mo.

Nondestructive Surface Detection of Cartilage Degeneration
Grodzinsky, Alan; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9111401 A001; 09/01/1991; $77,048; 12 mo.

Presidential Young Investigator Award
Hannaford, Blake; University of Washington, Seattle, WA 98195
BCS 9058408 A002; 09/15/1990; $37,500; 0 mo.
BCS 9058408 A003; 09/15/1990; $25,000; 12 mo.

Biomedical Instrumentation for Extracorporeal Shock Wave Lithotripsy
Hartenbaum, Bruce; H. Tech Laboratories Inc., Santa Monica, CA 90406
III 9105186 A000; 11/01/1991; $225,000; 24 mo.

Three-Dimensional Dynamic Modeling of the Human Knee Joint
Hefzy, Mohamed; University of Toledo, Toledo, OH 43606
BCS 9209078 A000; 09/15/1992; $38,704; 12 mo.

Undergraduate Designs for Rehabilitation Engineering
Hyman, William; Miller, Gerald; Texas A&M University-Main Campus, College Station, TX 77843
BCS 8805377 A004; 06/01/1988; $16,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $8,000

On the Use of Simulators for Control of Orthoses
Kazerooni, Homayoon; University of California-Berkeley, Berkeley, CA 94720
BCS 9196183 A001; 09/01/1991; $63,387; 12 mo.

Undergraduate Design Projects to Aid the Disabled
Kitto, Kathleen; Harris, F.; Western Washington University, Bellingham, WA 98225
BCS 9210889 A000; 08/15/1992; $10,000; 24 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $5,000

Undergrad. Engr. Design Initiative: Projects Which Aid the Disabled - Design and Modification of Assist Devices to Aid Cerebral Palsy Patients in Working Environment
Lam, Paul; University of Akron, Akron, OH 44325
BCS 8801380 A003; 06/01/1988; $18,900; 24 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $15,000

Fracture Mechanics of Articular Cartilage
Lewis, Jack; Keer, Leon; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 9022052 A001; 09/15/1991; $100,000; 12 mo.
Jointly Funded with MATERIALS ENGINEERING $30,000

Predictive Anatomical Models for Streaming Potentials in Bone
MacGinitie, Laura; Health Research Inc., Albany, NY 12237
BCS 9209046 A000; 08/15/1992; $135,000; 36 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $67,500

Joint Implant Surfaces
Naiman, Charles; Orthogen Inc., New York, NY 10003-9704
III 9160684 A000; 01/15/1992; $50,000; 6 mo.

Improved Signal Processing of the Visual Evoked Potential
Norcia, Anthony; Smith-Kittlewell Eye Research Foundation, San Francisco, CA 94115
BCS 9110565 A000; 06/01/1992; $90,000; 12 mo.
Jointly Funded with SENSORY AND MOTOR SYSTEMS and SPECIAL PROGRAMS $20,000

A Silicon Based, Three Dimensional Microsystem for Stimulation of the Visual Cortex
Normann, Richard; University of Utah, Salt Lake City, UT 84112
BCS 9110767 A001; 08/15/1991; $5,000; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $3,750
BCS 9110767 A002; 08/15/1991; $112,000; 12 mo.
Jointly Funded with SENSORY AND MOTOR SYSTEMS $22,000

Measuring and Modeling Control of Seated Posture
Riedel, Susan; Marquette University, Milwaukee, WI 53233
BCS 9211835 A000; 07/15/1992; $62,546; 24 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $31,273

Digital Signal Processing to Compensate for Sensorineural Hearing Impairments
Rutledge, Janet; Northwestern University, Evanston, IL 60208
BCS 9110247 A001; 09/01/1991; $4,500; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,250

Functional Electrical Stimulation of the Extremities
Solomonow, Moshe; Louisiana State University Medical Center-New Orleans, New Orleans, LA 70112
BCS 9207007 A000; 09/01/1992; $93,358; 12 mo.

Dynamic Stabilization of Stance via Foot Placement
Yamaguchi, Gary; Arizona State University, Tempe, AZ 85287
BCS 9110658 A001; 09/01/1991; $32,998; 0 mo.

NSF Young Investigator - Multisegmental Movement, Coordination and Control
Yamaguchi, Gary; Arizona State University, Tempe, AZ 85287
BCS 9257395 A000; 09/01/1992; $25,000; 12 mo.

Human Muscle Mechanics and the Distribution-Moment Model
Zahalak, George; Washington University, St. Louis, MO 63130
BCS 8918641 A002; 04/01/1990; $54,601; 12 mo.

Senior Design Projects to Aid the Handicapped
Zelano, John; The Foundation at NJIT, Newark, NJ 07102
BCS 8908923 A003; 09/01/1989; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $10,000

Cross-Directorate Programs

Second Forum on NSF Research in Subsurface Systems
Abriola, Linda; Hayes, Kim; Demond, Avery; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9121895 A000; 03/01/1992; $26,206; 12 mo.

Presidential Young Investigator Award - Physiological Aspects of Microbial Sulfur Transformations of Relevance to Concrete Corrosion
Arnold, Robert; University of Arizona, Tucson, AZ 85721
BCS 8658002 A008; 08/01/1987; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

Presidential Young Investigator Award
Arnold, Frances; California Institute of Technology, Pasadena, CA 91125
BCS 8957118 A003; 11/01/1989; $16,786; 0 mo.

Selective Polymers for Protein Separations: Investigation of Novel Template Polymerization Techniques
Arnold, Frances; Baldeschwieler, John; California Institute of Technology, Pasadena, CA 91125
BCS 9108502 A001; 08/15/1991; $163,053; 12 mo.

RUI: Ontogeny of Modulation of Dentate Granule Cell Excitability in the Freely Moving Rat
Bronzino, Joseph; Trinity College, Hartford, CT 06106
BCS 9010616 A002; 08/01/1990; $6,000; 0 mo.
Jointly Funded with

Microbiosensors to Evaluate Free Radical Activity in Tissue
Buerk, Donald; University of Pennsylvania, Philadelphia, PA 19104
BCS 9196021 A003; 09/01/1990; $5,000; 0 mo.

Cellular Mechanisms of Neurite Outgrowth and Guidance
Buettner, Helen; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
BCS 9210540 A000; 08/01/1992; $99,956; 36 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $63,808

Development and Evaluation PCR Technology for the Detection and Identification of HIV-I in Wastewater
Chaudhry, G. Rasul; Oakland University, Rochester, MI 48309-4401
BCS 9018567 A002; 02/01/1991; $5,000; 0 mo.

Hysteresis Rules and Design Parameters Assessment of RC Low-Rise Shear Walls and Buildings with Openings
Cheng, Franklin; University of Missouri-Rolla, Rolla, MO 65401
BCS 9001494 A001; 04/01/1990; $5,250; 0 mo.

Learning from Practice: Proposal for a Joint U.S./Italy Workshop - June 1992
Comerio, Mary; University of California-Berkeley, Berkeley, CA 94720
BCS 9113394 A000; 11/01/1991; $40,000; 17 mo.

Chicago Flood of April 1992
Cording, Edward; Gabriel, Fernandez; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9216233 A000; 06/01/1992; $35,464; 12 mo.

Microstructural Modeling of the Bone Implant Interface
Cowin, Stephen; Sadegh, Ali; CUNY-City College, New York, NY 10031
BCS 9103236 A001; 08/01/1991; $8,000; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $8,000

Amplification of Integrated Cloned Genes in Saccharomyces Cerevisiae
Da Silva, Nancy; University of California-Irvine, Irvine, CA 92717
BCS 9119808 A000; 03/15/1992; $240,851; 36 mo.

Surfactant-Enhanced Extraction of Residual Halogenated Organic Liquids from Sandy Aquifer Materials
Dawson, Helen; Colorado School of Mines, Golden, CO 80401
BCS 9210174 A000; 08/01/1992; $17,870; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $17,870

Mechanisms of Neuronal Excitation by Magnetically Induced Currents
Durand, Dominique; Case Western Reserve University, Cleveland, OH 44106
BCS 9111503 A001; 08/15/1991; $10,000; 0 mo.

Flow Cytometric Study of Ciliate Physiology
Fredrickson, Arnold; Srienc, Friedrich; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 9001095 A003; 06/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Evaluation of Ductile Connections for Precast Frame Systems
French, Catherine; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 9122922 A000; 03/01/1992; $140,000; 36 mo.

Stochastic Analysis of Large-Scale Transport Processes in Aquifers
Gelhar, Lynn; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 8814615 A003; 01/01/1989; $10,000; 0 mo.

Presidential Young Investigator Award
Georgakakos, Konstantine; University of Iowa, Iowa City, IA 52242
BCS 8657526 A008; 07/01/1987; $34,936; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $9,936

Genetic Engineering for Product Using Non-Chromatographic Methods
Glatz, Charles; Ford, Clark; Honzatko, Richard; Iowa State University, Ames, IA 50011
BCS 9108583 A001; 09/01/1991; $5,000; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $5,000

Presidential Young Investigator Award
Goochee, Charles; Stanford University, Stanford, CA 94305
BCS 8857712 A006; 01/01/1989; $10,000; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $5,000

Undergraduate Designs for Rehabilitation Engineering
Hyman, William; Miller, Gerald; Texas A&M University-Main Campus, College Station, TX 77843
BCS 8805377 A004; 06/01/1988; $16,000; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $8,000

Presidential Young Investigator Award: Dynamic Modeling of Wind-Induced Lateral-Torsional Motion of Structures
Kareem, Ahsan; University of Notre Dame, Notre Dame, IN 46556
BCS 9096274 A002; 09/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Undergraduate Design Projects to Aid the Disabled
Kitto, Kathleen; Harris, F.; Western Washington University, Bellingham, WA 98225
BCS 9210889 A000; 08/15/1992; $10,000; 24 mo.

Quantitative Imaging of Regional Pulmonary Blood Flow
Knight, Herbert; University of Virginia-Main Campus, Charlottesville, VA 22901
BCS 9154521 A000; 01/15/1992; $12,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $12,000

Models of Warning Systems for Natural Hazards
Krzysztofowicz, Roman; University of Virginia-Main Campus, Charlottesville, VA 22901
BCS 9016979 A003; 02/15/1991; $5,000; 0 mo.
Jointly Funded and HUMAN RESOURCES DEVELOPMENT $5,000

Undergrad. Engr. Design Initiative: Projects Which Aid the Disabled - Design and Modification of Assist Devices to Aid Cerebral Palsy Patients in Working Environment
Lam, Paul; University of Akron, Akron, OH 44325
BCS 8801380 A003; 06/01/1988; $18,900; 24 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $15,000

Development of Bioerodible Polymer Matrices for Osteoblast Growth and Maturation
Laurencin, Cato; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9011170 A003; 07/01/1990; $10,000; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $10,000

U.S.-Costa Rica Workshop on the Effects on Soils and Structures of the 1990 and 1991 Costa Rican Earthquakes
Leon, Roberto; Tubbesing, Susan; Stepp, J.; Youd, T. Leslie; Santana, G.; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9212509 A000; 04/01/1992; $20,300; 9 mo.
Jointly Funded with STRUCTURAL SYSTEMS and SITING AND GEOTECHNICAL SYSTEMS $10,150

Feasibility of Utilizing Optical Fibers for Multicontaminant Monitoring of Unsaturated Environmental Systems
Leonard, Kathleen; University of Alabama in Huntsville, Huntsville, AL 35899
BCS 9210283 A000; 09/01/1992; $17,864; 18 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $17,864

Biodegradation of Macromolecules in Complex Wastewaters
Logan, B.; University of Arizona, Tucson, AZ 85721
BCS 8912893 A003; 03/01/1990; $10,000; 0 mo.

Experiment Design and Analysis for Identifying Mechanical Properties of Physiological Systems at Low Frequencies
Lutchen, Kenneth; Boston University, Boston, MA 02215
BCS 9011168 A003; 08/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Predictive Anatomical Models for Streaming Potentials in Bone
MacGinitie, Laura; Health Research Inc., Albany, NY 12237
BCS 9209046 A000; 08/15/1992; $135,000; 36 mo.

CSU/TTU Cooperative Research Program in Wind Engineering
Mehta, Kishor; Texas Tech University, Lubbock, TX 79409
BCS 8821163 A005; 06/01/1989; $40,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $15,000

CSU/TTU Cooperative Research Program for Wind Engineering
Meroney, Robert; Colorado State University, Fort Collins, CO 80523
BCS 8821542 A004; 06/01/1989; $40,000; 12 mo.
Jointly Funded with and HUMAN RESOURCES DEVELOPMENT $15,000

Presidential Young Investigator Award
Miller, William; Northwestern University, Evanston, IL 60208
BCS 9058416 A003; 11/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Biosensors for Tissue Engineering
Nair, Pankajam; Louisiana Tech University, Ruston, LA 71272
BCS 8913465 A005; 09/01/1989; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

An Approach to Introduce Earthquake Mitigation Through Urban Redevelopment Programs
Nanita-Kennett, Milagros; ABT Associates Inc., Cambridge, MA 02101
BCS 9201116 A000; 03/15/1992; $0; 3 mo.

An Approach to Introduce Earthquake Mitigation Through Urban Redevelopment Programs
Nanita-Kennett, Milagros; Florida Agricultural and Mechanical University, Tallahassee, FL 32307
BCS 9296139 A000; 05/07/1992; $118,873; 16 mo.

The Impact of Mandatory Change of Catastrophic Earthquake Insurance in California
Palm, Risa; University of Oregon-Eugene, Eugene, OR 97403
BCS 9200681 A000; 07/15/1992; $108,443; 12 mo.

Genetic Analysis and Metabolic Engineering of Anaerobic Butyric-Acid Clostridia
Papoutsakis, Eleftherios; Welker, Neil; Northwestern University, Evanston, IL 60208
BCS 8912209 A004; 09/01/1989; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Long-Term Effects of Reconstruction on Vulnerability as Defined by Urban Patterning and Urban Form
Preuss, Jane; Urban Regional Research, Seattle, WA 98101
BCS 9207158 A000; 09/01/1992; $79,806; 12 mo.

Measuring and Modeling Control of Seated Posture
Riedel, Susan; Marquette University, Milwaukee, WI 53233
BCS 9211835 A000; 07/15/1992; $62,546; 24 mo.

Evaluation of the Strength, Stiffness, and Ductility of Older Steel Frame Structures
Roeder, Charles; University of Washington, Seattle, WA 98195
BCS 9016714 A002; 10/01/1990; $30,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $26,250

Digital Signal Processing to Compensate for Sensorineural Hearing Impairments
Rutledge, Janet; Northwestern University, Evanston, IL 60208
BCS 9110247 A001; 09/01/1991; $4,500; 0 mo.

Surfactant Selection for Use in Enhanced Remediation of Petroleum Contaminated Ground Water: Surfactant Enhanced Subsurface Flushing and Micellar-Enhanced Ultrafiltration
Sabatini, David; University of Oklahoma-Norman Campus, Norman, OK 73019
BCS 9110780 A001; 07/01/1991; $9,375; 0 mo.

Regional Flood Hazard Analysis
Salas, Jose; Boes, Duane; Wohl, Ellen; Colorado State University, Fort Collins, CO 80523
BCS 9101741 A001; 06/15/1991; $121,777; 12 mo.

Presidential Young Investigator Award
Shing, Pui-Shum; University of Colorado at Boulder, Boulder, CO 80309
BCS 8658100 A006; 07/15/1987; $10,000; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $5,000

Finite Strain, Poroelastic Model for Large Arteries
Simon, Bruce; Baldwin, A.; University of Arizona, Tucson, AZ 85721
BCS 9210282 A000; 08/15/1992; $66,989; 12 mo.

Robust Feedback Control of Structures for Earthquake Hazard Mitigation
Spencer, Billie; Sain, Michael; University of Notre Dame, Notre Dame, IN 46556
BCS 9006781 A002; 11/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

Co-Metabolic Inhibition Kinetics of Chlorinated Hydrocarbon Degradation by Methane and Propane Oxidizers
Strand, Stuart; Stensel, H. David; University of Washington, Seattle, WA 98195
BCS 8902772 A005; 07/01/1989; $9,981; 0 mo.

Learning from Earthquakes Program
Tubbesing, Susan; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9215158 A000; 08/15/1992; $178,258; 12 mo.

West Coast Regional Workshop on Architectural Research Needs in Earthquake Hazard Mitigation
Ubbelobde, M. Susan; Seible, Frieder; University of California-San Diego, San Diego, CA 92093
BCS 9212797 A000; 04/01/1992; $19,996; 6 mo.

Electron Beam Irradiation of Aqueous Systems at Large Scale
Waite, Thomas; Kurucz, Charles; University of Miami, Coral Gables, FL
BCS 9108033 A001; 08/15/1991; $56,125; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $44,432

Identification and Active Control of Structures Under Earthquake Loadings
Yang, Jackson; Amini, Farshad; Qi, Gui-Zhong; University of Maryland-College Park, College Park, MD 20742
BCS 9114047 A001; 06/01/1991; $14,400; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

Senior Design Projects to Aid the Handicapped
Zelano, John; The Foundation at NJIT, Newark, NJ 07102
BCS 8908923 A003; 09/01/1989; $10,000; 0 mo.
SPECIAL PROGRAMS $10,000

Effect of Spatial and Directional Variability of Seismic Ground Motion on the Response of Structures
Zerva, Aspasia; Drexel University, Philadelphia, PA 19104
BCS 9114895 A000; 02/01/1992; $127,469; 24 mo.

Earthquake Hazard Mitigation Program

Architecture and Mechanical Systems

Response and Damage of Unreinforced Masonry Buildings in Loma Prieta Earthquake
Abrams, Daniel; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9003654 A001; 04/15/1990; $22,782; 9 mo.

Analytical and Experimental Studies of the Seismic Response of Building Contents/Support Systems
Agbabian, Mihran; Masri, Sami; University of Southern California, Los Angeles, CA 90089
BCS 9117049 A000; 02/15/1992; $49,307; 12 mo.

Safety and Performance Enhacement of Structures Through Structural Control
Ang, A. H-S.; University of California-Irvine, Irvine, CA 92717
BCS 9201812 A000; 07/01/1992; $66,147; 12 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI $19,037

Seismic Performance of Curtain Wall Glass Elements
Behr, Richard; Belarbi, Abdeldjelil; University of Missouri-Rolla, Rolla, MO 65401
BCS 9213172 A000; 09/01/1992; $84,521; 12 mo.

Academic Support for 5th Annual Smart Materials and Structures Workshop to be held April 15-16, 1992 in Blacksburg, Virginia
Claus, Richard; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
BCS 9204035 A000; 04/01/1992; $2,750; 24 mo.

Learning from Practice: Proposal for a Joint U.S./Italy Workshop - June 1992
Comerio, Mary; University of California-Berkeley, Berkeley, CA 94720
BCS 9113394 A000; 11/01/1991; $40,000; 17 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $20,000

Presidential Young Investigator Award
Constantinou, Michalakis; SUNY at Buffalo, Amherst, NY 14228
BCS 8857080 A005; 09/15/1988; $62,500; 12 mo.

Retrofit Strategies for Non-Ductile Reinforced Concrete Flat-Slab Buildings
Durrani, Ahmad; William Marsh Rice University, Houston, TX 77252
BCS 9221522 A000; 09/15/1992; $100,000; 24 mo.
Jointly Funded with STRUCTURAL SYSTEMS $100,000

Fifth U.S.-Japan Workshop on Earthquake Disaster Prevention for Lifeline Systems
Eguchi, Ronald; EQE International Inc., San Francisco, CA 94104
BCS 9215522 A000; 08/15/1992; $32,416; 12 mo.

Seismic Behavior of Steel Plate Shear Walls - Phase II
Elgaaly, Mohamed; Caccese, Vincent; University of Maine, Orono, ME 04469-0114
BCS 9019766 A001; 01/01/1991; $91,653; 12 mo.

Press Project 1.1: Concept Development
Englekirk, Robert; Nakaki, Suzanne; Englekirk and Sabol Consulting Engineers, Inc., Los Angeles, CA 90018-1398
BCS 9011671 A002; 05/01/1990; $20,000; 12 mo.

Presidential Young Investigator Award
Filippou, Filip; University of California-Berkeley, Berkeley, CA 94720
BCS 8657525 A005; 08/01/1987; $37,500; 0 mo.

Evaluation of Ductile Connections for Precast Frame Systems
French, Catherine; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 9122922 A000; 03/01/1992; $140,000; 36 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $70,000

Active Control of Structures Using Neural Networks
Ghaboussi, Jamshid; Wen, Y.; Paul, Stanley; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9201437 A000; 06/15/1992; $46,439; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS and NAT AND MAN-MADE HAZARD MITIGATI $25,000

Seismic Strengthening of URM Buildings by Steel Bracing
Goel, Subhash; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9120096 A001; 09/01/1991; $67,907; 12 mo.

Planning Phase 5 of U.S.-Japan Cooperative Earthquake Research
Goel, Subhash; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9201309 A000; 02/01/1992; $15,000; 12 mo.
BCS 9201309 A001; 02/01/1992; $23,500; 0 mo.

Hybrid Control of Building Seismic Response Using Architectural Cladding
Goodno, Barry; Calise, Anthony; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 9202039 A000; 07/01/1992; $87,651; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $37,651

The Sixth North American Masonry Conference to be held at Drexel University in June 1993
Hamid, Ahmad; Drexel University, Philadelphia, PA 19104
BCS 9120058 A000; 11/01/1991; $42,800; 22 mo.

Mechanical Damping for Improved Earthquake Resistance of Structures
Hanson, Robert; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9114755 A001; 08/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Structural Control for Earthquakes and Wind Storms Using Active Structural Members
Hanson, Robert; Filisko, Frank; McClamroch, Nathaniel; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9201787 A000; 07/15/1992; $103,448; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $27,000

Preliminary Design Recommendations (Press Project 1.6)
Hart, Gary; University of California-Los Angeles, Los Angeles, CA 90024
BCS 9011672 A002; 05/01/1990; $59,999; 12 mo.

Seismic Mitigation Strategies for Existing School Buildings Which Are Subject to Earthquake Risk Throughout the United States
Hattis, David; Krimgold, Frederick; Building Technology Inc., Silver Spring, MD 20910
BCS 9117732 A000; 02/15/1992; $219,541; 24 mo.

Evaluation and Repair of Concrete Tilt-Up Systems
Hawkins, Neil; Wood, Sharon; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9120281 A001; 09/15/1991; $141,713; 12 mo.

U.S.-Italy-Japan Workshop on Structural Control and Intelligent Systems
Housner, George; Masri, Sami; California Universities for Research in Earthquake Engineering, Richmond, CA 94804
BCS 9212519 A000; 05/15/1992; $36,855; 12 mo.

Program Coordination ... Repair and Rehabilitation Research
Jirsa, James; University of Texas at Austin, Austin, TX 78712
BCS 9120201 A001; 08/15/1991; $37,700; 12 mo.

Presidential Young Investigator Award
Kasai, Kazuhiko; Illinois Institute of Technology, Chicago, IL 60616
BCS 9157942 A001; 07/15/1991; $62,500; 12 mo.

Improvements in Aerobic Bioreactor Cell Capacity Through Fac Facilitated Oxygen Transport Agents
Kerr, John; Aquanautics Corporation, Alameda, CA 94501
III 9161004 A000; 01/01/1992; $49,993; 6 mo.

Evaluation of Ductile Connections for Precast Frame Systems
Kreger, Michael; Burns, Ned; University of Texas at Austin, Austin, TX 78712
BCS 9122950 A000; 03/01/1992; $79,000; 12 mo.

US-Japan Seminar on Stability of Steel Structures Under Cyclic Loading and US-Taiwan Workshop on Analysis and Design of Structures with Enhanced Damping Capacity
Lee, George; Travel Award, Washington, DC 20550
BCS 9216159 A000; 05/15/1992; $3,612; 6 mo.
Jointly Funded with STRUCTURAL SYSTEMS $3,612

Generalized Structural Analysis Algorithm with Learning Capacity
Lee, George; Elkordy, M.; SUNY at Buffalo, Amherst, NY 14228
BCS 9222710 A000; 09/01/1992; $14,992; 12 mo.

U.S.-Costa Rica Workshop on the Effects on Soils and Structures of the 1990 and 1991 Costa Rican Earthquakes
Leon, Roberto; Tubbesing, Susan; Stepp, J.; Youd, T. Leslie; Santana, G.; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9212509 A000; 04/01/1992; $20,300; 9 mo.
Jointly Funded with STRUCTURAL SYSTEMS and SITING AND GEOTECHNICAL SYSTEMS $10,150

Passive Smart Cementitious Composites for Dynamic Control Structures: Internal Timed Release of Chemicals for Self-Repair of Crack Damage
Li, Victor; Dry, Carolyn; University of Michigan-Ann Arbor, Ann Arbor, MI 481091220
BCS 9202097 A000; 09/15/1992; $150,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $55,639

Active Tuned Liquid Damper for Structural Control
Lou, Jack; Lutes, Loren; Texas A&M University Research Foundation, College Station, TX 77843
BCS 9202092 A000; 09/01/1992; $88,621; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $14,541

Post-Earthquake Rebuilding - An Exercise for Planners (PREP)
Mader, George; Blair, Martha; William Spangle and Associates, Portola Valley, CA 94025
BCS 9025125 A001; 07/15/1991; $80,953; 12 mo.

Studies of Integration and Implementation Issues in the Active Control of Lifeline Systems
Masri, Sami; University of Southern California, Los Angeles, CA 90089
BCS 9203994 A000; 07/01/1992; $94,466; 12 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI $20,000

An Approach to Introduce Earthquake Mitigation Through Urban Redevelopment Programs
Nanita-Kennett, Milagros; ABT Associates Inc., Cambridge, MA 02101
BCS 9201116 A000; 03/15/1992; $0; 3 mo.

An Approach to Introduce Earthquake Mitigation Through Urban Redevelopment Programs
Nanita-Kennett, Milagros; Florida Agricultural and Mechanical University, Tallahassee, FL 32307
BCS 9296139 A000; 05/07/1992; $118,873; 16 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $59,437

Lateral Confinement of Concrete Using High-Strength Fiber Reinforcement
Nanni, Antonio; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9108598 A001; 09/15/1991; $10,000; 0 mo.

Seismic Response of Liquid Storage Tanks
Natsiavas, Sotirios; Arizona State University, Tempe, AZ 85287
BCS 9121443 A000; 04/15/1992; $45,486; 12 mo.

U.S. Coordinated Program for Masonry Building Research - Technology Transfer
Noland, James; Atkinson-Noland and Associates Inc., Boulder, CO 80302
BCS 9109322 A003; 05/01/1991; $142,237; 12 mo.

Evaluation of Seismic Retrofit Strategies for Non-Ductile Concrete Frame Structures
Pessiki, Stephen; Sause, Richard; Lehigh University, Bethlehem, PA 18015
BCS 9120388 A001; 09/01/1991; $10,000; 0 mo.
BCS 9120388 A002; 09/01/1991; $36,251; 12 mo.

Precast Seismic Structural Systems (PRESS) - Task 1.4 Analytical Platform Development
Powell, Graham; Filippou, Filip; University of California-Berkeley, Berkeley, CA 94720
BCS 9011674 A002; 05/01/1990; $90,000; 12 mo.

Long-Term Effects of Reconstruction on Vulnerability as Defined by Urban Patterning and Urban Form
Preuss, Jane; Urban Regional Research, Seattle, WA 98101
BCS 9207158 A000; 09/01/1992; $79,806; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $39,903

Press Project 1.7 Coordination
Priestley, M.J. Nigel; University of California-San Diego, San Diego, CA 92093
BCS 8920776 A002; 05/01/1990; $58,803; 12 mo.

Quality Control in Seismic Design Construction
Schierle, G. Goetz; University of Southern California, Los Angeles, CA 90089
BCS 9203339 A000; 03/15/1992; $98,365; 12 mo.

East-Coast Regional Workshop on Architectural Research Needs in Earthquake Hazard Mitigation
Schodek, Daniel; Harvard University, Cambridge, MA 02138
BCS 9201323 A000; 11/15/1991; $19,751; 6 mo.

Development of Adaptive Hybrid Control Techniques for Building Structures
Shing, Pui-Shum; Frangopol, Dan; Su, Renjeng; Mikulas, Martin; University of Colorado at Boulder, Boulder, CO 80309
BCS 9201962 A000; 06/15/1992; $66,539; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $23,270

Engineering Research Equipment: Modal Analyzer and Real-Time Digital Control System
Spencer, Billie; Sain, Michael; University of Notre Dame, Notre Dame, IN 46556
BCS 9212700 A000; 07/01/1992; $26,837; 12 mo.

Connection Classification and Modelling for Precast Seismic Structural Systems
Stanton, John; Hawkins, Neil; University of Washington, Seattle, WA 98195
BCS 9011676 A003; 05/15/1990; $30,000; 12 mo.

Equipment for Dynamic Experiments
Stanton, John; Holtz, Robert; Reed, Dorothy; Haraldsdottir, Aslaug; Roeder, Charles; University of Washington, Seattle, WA 98195
BCS 9109346 A000; 11/01/1991; $85,000; 16 mo.
Jointly Funded with SITING AND GEOTECHNICAL SYSTEMS and STRUCTURAL SYSTEMS $40,000

Behavior of a 6-Story Office Building Under Moderate Seismicity
Tadros, Maher; Salmon, David; Schultz, Arturo; Magana, Rafael; Abdel-Karim, Ahmad; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
BCS 9123015 A000; 03/01/1992; $135,472; 12 mo.

Travel Funds for U.S. Attendees to the Tenth World Conference on Earthquake Engineering to be held in Madrid, Spain on July 19-24, 1992
Tubbesing, Susan; McGuire, Robin; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9120748 A000; 11/15/1991; $109,968; 12 mo.
Jointly Funded with SITING AND GEOTECHNICAL SYSTEMS and STRUCTURAL SYSTEMS $54,984

International Travel Grant to Plan Cooperative Earthquake Engineering Programs with Costa Rica (Fall 1991)
Tubbesing, Susan; Veletsos, Anestis; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9123424 A000; 11/15/1991; $4,900; 6 mo.

West Coast Regional Workshop on Architectural Research Needs in Earthquake Hazard Mitigation
Ubbelobde, M. Susan; Seible, Frieder; University of California-San Diego, San Diego, CA 92093
BCS 9212797 A000; 04/01/1992; $19,996; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $9,998

Midwest Regional Workshop on Architectural Research Needs in Earthquake Hazard Mitigation
Van Bakergem, W. Davis; Washington University, St. Louis, MO 63130
BCS 9204896 A000; 01/01/1992; $16,352; 6 mo.

A Study of Behavior and Design of Reinforced Concrete Shear Walls with Unsymmetrical Cross-Section
Wallace, John; Clarkson University, Potsdam, NY 13676
BCS 9112962 A001; 07/01/1991; $15,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

Repair and Rehabilitation Research for Seismic Resistance of Buried Water and Sewer Lifelines
Wang, Leon; Ishibashi, Isao; Old Dominion University Research Foundation, Norfolk, VA 23508-0369
BCS 9100091 A001; 03/01/1991; $44,735; 12 mo.

Reliability Evaluation of Current Design Procedures for Steel Buildings Under Seismic Loads
Wen, Y.; Foutch, Douglas; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9106390 A001; 08/15/1991; $132,804; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $66,400

Life Safety, Economic and Liability Risks Associated with Strengthened Unreinforced Masonry Buildings
Wiggins, John; Crisis Management Corporation, Redondo Beach, CA 90277
BCS 9123954 A000; 05/15/1992; $126,598; 18 mo.
Jointly Funded with EARTHQUAKE SYSTEMS INTEGRATION $20,000

Hybrid Control of Seismic Response of Bridge Structures: A Coordinated Effort Between the U.S. and Japan
Yang, Jann; University of California-Irvine, Irvine, CA 92717
BCS 9120128 A000; 02/15/1992; $107,921; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $53,960

Full-Scale Active Control Research and Implementation
Yang, Jann; University of California-Irvine, Irvine, CA 92717
BCS 9122046 A000; 01/01/1992; $125,000; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $62,500

Active Control of Structure Instrumented with Optical Fiber Sensors Under Earthquake Loading
Yang, Jackson; Sirkis, James; Amini, Farshad; Qi, Gui-Zhong; University of Maryland-College Park, College Park, MD 20742
BCS 9202159 A000; 07/01/1992; $58,253; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS and NAT AND MAN-MADE HAZARD MITIGATI $27,836

Structural Instability Behavior and Material Failure of J-Stiffened Composite Fuselage Panels
Yeh, Hsien-Yang; Chen, Victor; California State University-Long Beach Foundation, Long Beach, CA 90815
MSS 9213705 A000; 08/15/1992; $15,500; 12 mo.

Seismic Rehabilitation of Unreinforced Building Structures Using Post-Tensioned Steel Braces
Youssef, Nabih F.; Bertero, Vitelmo; Guh, T. Jeff; Nabih Youssef & Associates Inc., Los Angeles, CA 90017
BCS 9221527 A000; 09/01/1992; $40,230; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $40,230

Earthquake Systems Integration

Binational Study of Disaster Mitigation and Environmental Protection
Bates, Frederick; Pelanda, Carlo; University of Georgia Research Foundation Inc., Athens, GA 30602
BCS 9123676 A000; 06/01/1992; $32,392; 24 mo.

Electromagnetic Wave Life-Detection System for Post Earthquake Rescue Operations
Chen, Kun-Mu; Michigan State University, East Lansing, MI 48824
BCS 9114513 A000; 01/01/1992; $289,090; 24 mo.

An Intelligent Geographic Information System for Better Earthquake Risk Management
Dong, Wei Min; Risk Management Software Inc., Mountain View, CA 94041
III 9161310 A000; 01/01/1992; $49,150; 6 mo.

Disaster Evacuation Behavior Among Transient Populations
Drabek, Thomas; University of Denver, Denver, CO 80208
BCS 9115525 A000; 01/15/1992; $118,242; 12 mo.

Board on Natural Disasters
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
BCS 9207384 A000; 09/01/1992; $30,000; 12 mo.
Jointly Funded with AGRICULTURE $10,000

Earthquake Awareness and Preparedness in the St. Louis Metropolitan Area, Cape Girardeau, Missouri, and Sikeston, Missouri
Farley, John; Southern Illinois University at Edwardsville, Edwardsville, IL 62026
BCS 9203475 A000; 05/15/1992; $59,064; 14 mo.

Interorganizational Relations for Disaster Preparedness
Gillespie, David; Colignon, Richard; Washington University, St. Louis, MO 63130
BCS 8920472 A001; 04/01/1990; $7,776; 0 mo.

Core Activities of the Committee on Earthquake Engineering
Guarnizo, Caroline; National Academy of Sciences, Washington, DC 20418
BCS 9208838 A000; 04/15/1992; $90,000; 12 mo.

Judgments of Responsibilities for Disaster Consequences
Hans, Valerie; Nigg, Joanne; University of Delaware, Newark, DE 19716
SBE 9213737 A000; 09/01/1992; $76,484; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $12,425

Seismic Mitigation Strategies for Existing School Buildings Which Are Subject to Earthquake Risk Throughout the United States
Hattis, David; Krimgold, Frederick; Building Technology Inc., Silver Spring, MD 20910
BCS 9117732 A000; 02/15/1992; $219,541; 24 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $109,770

Hazard Proofing the Nation - A Strategy to Reduce Natural Disasters
Hays, Walter; Geological Survey, Reston, VA 22092
BCS 9215968 A000; 07/01/1992; $3,000; 12 mo.

Report on the Great Tangshan Earthquake of 1976
Housner, George; California Institute of Technology, Pasadena, CA 91125
BCS 9120397 A000; 01/15/1992; $66,901; 24 mo.

Presidential Young Investigator Award
Jones, Nicholas; Johns Hopkins University, Baltimore, MD 21218
BCS 8957133 A003; 08/01/1989; $46,322; 12 mo.

Economies of Expertise: Factors Promoting Comprehensive Local Hazards Management
Kartez, Jack; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
BCS 9203385 A000; 09/01/1992; $168,004; 24 mo.

A Database for Tsunamis Affecting Alaska and Hawaii
Lander, James; University of Colorado at Boulder, Boulder, CO 80309
BCS 9208173 A000; 09/15/1992; $121,212; 12 mo.

Post-Earthquake Rebuilding - An Exercise for Planners (PREP)
Mader, George; Blair, Martha; William Spangle and Associates, Portola Valley, CA 94025
BCS 9025125 A001; 07/15/1991; $80,953; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $35,000

Comparative Study of Cooperative Hazards Policies: Lessons for the United States from Australia and New Zealand
May, Peter; University of Washington, Seattle, WA 98195
BCS 9208082 A000; 09/15/1992; $154,350; 12 mo.

Presidential Young Investigator Award - Large-Scale Technological Systems Safety, Operations and Earthquake
Meshkati, Najmedin; University of Southern California, Los Angeles, CA 90089
BCS 8957425 A003; 08/01/1989; $55,000; 12 mo.

Bay Area Response to Information About a Future Major Earthquake
Mileti, Dennis; Colorado State University, Fort Collins, CO 80523
BCS 9107266 A001; 07/15/1991; $134,578; 12 mo.

Assessment of Research and Applications on Natural Hazards
Mileti, Dennis; Colorado State University, Fort Collins, CO 80523
BCS 9207146 A000; 03/01/1992; $58,812; 9 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI $29,406

National Information Service for Earthquake Engineering
Moehle, Jack; University of California-Berkeley, Berkeley, CA 94720
BCS 9013334 A001; 01/01/1991; $460,265; 12 mo.

The Impact of Mandatory Change of Catastrophic Earthquake Insurance in California
Palm, Risa; University of Oregon-Eugene, Eugene, OR 97403
BCS 9200681 A000; 07/15/1992; $108,443; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $54,221

US-USSR Seminar on Social Science Research on Mitigation for and Recovery from Disasters and Large Scale Hazards (Moscow, Russia; June 13-22, 1992)
Quarantelli, Enrico; Nigg, Joanne; University of Delaware, Newark, DE 19716
INT 9201063 A000; 06/15/1992; $18,642; 6 mo.

U.S. Panel on Wind and Seismic Effects
Raufaste, Noel; National Institute of Standards and Technology, Gaithersburg, MD 20899
BCS 9201553 A000; 02/01/1992; $20,000; 12 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI $5,000

Travel Funds for U.S. Attendees to the Tenth World Conference on Earthquake Engineering to be held in Madrid, Spain on July 19-24, 1992
Tubbesing, Susan; McGuire, Robin; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9120748 A000; 11/15/1991; $109,968; 12 mo.
Jointly Funded with SITING AND GEOTECHNICAL SYSTEMS and STRUCTURAL SYSTEMS $54,984

Learning from Earthquakes Program
Tubbesing, Susan; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9215158 A000; 08/15/1992; $178,258; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $89,129

Search and Rescue: An Integrated Multidisciplinary Study
Wenger, Dennis; Aguirre, Benigno; Stubbs, Norris; Glass, Thomas; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
BCS 9014830 A002; 11/15/1990; $101,061; 12 mo.

A Clearinghouse on Natural Hazards Research and Applications
White, Gilbert; University of Colorado at Boulder, Boulder, CO 80309
BCS 9012839 A003; 09/01/1990; $68,691; 0 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI and ARMY $48,691

Natural Hazards Research and Applications Information Center
White, Gilbert; University of Colorado at Boulder, Boulder, CO 80309
BCS 9213479 A000; 10/01/1992; $527,184; 12 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI and ARMY-NHRAIC $68,184

Life Safety, Economic and Liability Risks Associated with Strengthened Unreinforced Masonry Buildings
Wiggins, John; Crisis Management Corporation, Redondo Beach, CA 90277
BCS 9123954 A000; 05/15/1992; $126,598; 18 mo.

Identification and Active Control of Structures Under Earthquake Loadings
Yang, Jackson; Amini, Farshad; Qi, Gui-Zhong; University of Maryland-College Park, College Park, MD 20742
BCS 9114047 A001; 06/01/1991; $14,400; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $8,750

Siting and Geotechnical Systems

Fast System Identification Using Building Seismic Records and Site Response Study for Microzonation (US-Taiwan/IDNDR)
Aki, Keiiti; University of Southern California, Los Angeles, CA 90089
BCS 9116714 A000; 03/15/1992; $71,102; 36 mo.

Continued Operation of an Earthquake Strong Motion Accelerograph Network Along the Mexican Subduction Thrust
Anderson, John; University of Nevada-Reno, Reno, NV 89557
BCS 9120027 A000; 02/15/1992; $102,342; 12 mo.

Verification of Soil Liquefaction Analysis by Coordinated Geotechnical Centrifuge Studies
Arulanandan, Kandiah; University of California-Davis, Davis, CA 95616-8671
BCS 8912074 A003; 10/01/1989; $199,524; 12 mo.

Workshop for Geotechnical Research Needs for the Assessment and Mitigation of Infrastucture Deterioration in Response to Earthquakes
Arulanandan, Kandiah; University of California-Davis, Davis, CA 95616-8671
BCS 9208868 A000; 03/15/1992; $35,000; 15 mo.

Verification of Soil Liquefaction Analysis by Coordinated Geotechnical Centrifuge Studies
Arulmoli, Kandiah; Earth Technology Corp.-Long Beach Headquarters, Long Beach, CA 90802-5785
BCS 8922874 A006; 11/15/1989; $26,708; 12 mo.
BCS 8922874 A007; 11/15/1989; $26,500; 0 mo.

Prediction of Soil Liquefaction in Centrifuge Model Tests
Bardet, Jean-Pierre; University of Southern California, Los Angeles, CA 90089
BCS 9120129 A000; 02/01/1992; $15,000; 18 mo.

Workshop on the Selection and Management of U.S. Geotechnical Experimentation Sites
Benoit, Jean; De Alba, Pedro; University of New Hampshire-Durham, Durham, NH 03824
MSS 9121387 A000; 10/15/1991; $34,478; 12 mo.
Jointly Funded with SPECIAL STUDIES AND ANALYSES $5,000

International Cooperation in Geotechnical Experimentation Sites
Benoit, Jean; University of New Hampshire-Durham, Durham, NH 03824
BCS 9206415 A000; 04/15/1992; $25,451; 12 mo.

REG: A Computational Mechanics Laboratory
Bielak, Jacobo; Ghattas, Omar; Carnegie-Mellon University, Pittsburgh, PA 15213
BCS 9212819 A000; 09/15/1992; $48,000; 12 mo.

A Coupled FE-BE Model for Nonlinear Soil-Structure Interaction Analysis
Borja, Ronaldo; Stanford University, Stanford, CA 94305
BCS 9114869 A000; 02/01/1992; $194,907; 24 mo.

PYIA: Effects of Earthquake Fault Rupture on Geotechnical Structures
Bray, Jonathan; Purdue University Research Foundation, West Lafayette, IN 47907
BCS 9157083 A001; 08/15/1991; $62,500; 12 mo.

Cooperative Research: Three-Dimensional Effects of Tsunami Run-Up onto a Coastline
Briggs, Michael; Department of Army Waterways Experiment Station, Vicksburg, MS 39180
BCS 9205134 A000; 02/01/1992; $73,000; 12 mo.

Cooperative Research: Three-Dimensional Effects of Tsunami Run-Up onto a Coastline
Carrier, George; Individual Award, Washington, MA 20550
BCS 9203476 A000; 02/01/1992; $37,000; 12 mo.

Proposal for a Workshop to Design a Soil-Structure Interaction Experiment
Celebi, Mehmet; Geological Survey-Menlo Park, Menlo Park, CA 94025
BCS 9204283 A000; 01/15/1992; $5,000; 12 mo.

Support for Workshop on Geographic Information Systems and Their Application in Geotechnical Earthquake Engineering
Chameau, Jean-Lou; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 9213395 A000; 06/01/1992; $29,097; 12 mo.
Jointly Funded with GEOMECHAN, GEOTECH AND GEOENVIRN $1,000

Site-Response Studies for Purpose of Revising NEHRP Seismic Provisions
Crouse, C.; Dames & Moore, A Professional Limited Partnership Co., Los Angeles, CA 90017
BCS 9216637 A000; 09/01/1992; $30,000; 12 mo.
Jointly Funded with NUCLEAR REGULATORY COMMISSION $30,000

NSF Young Investigator
Deodatis, George; Princeton University, Princeton, NJ 08544
BCS 9257900 A000; 08/15/1992; $25,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $17,500

Velacs - Verification of Liquefaction Analysis by Centrifuge Studies
Dobry, Ricardo; Elgamal, Ahmed; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
BCS 9016880 A002; 08/01/1990; $1,575; 12 mo.

Symposium on Centrifuge Modelling for Geotechnical and Earthquake Engineering Applications, Troy, NY, 14 July 1992
Dobry, Ricardo; Elgamal, Ahmed; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
BCS 9216234 A000; 06/15/1992; $38,298; 12 mo.

Organizational and Operating Cost for USUCGER
Edil, Tuncer; University of Wisconsin-Madison, Madison, WI 53706
MSS 9122195 A000; 01/15/1992; $15,000; 12 mo.
Jointly Funded with SPECIAL STUDIES AND ANALYSES $5,000

Earthquake Safety of Natural Gas Systems - Analysis of Data from the 17 October 1989 Loma Prieta Earthquake
Eguchi, Ronald; EQE International Inc., San Francisco, CA 94104
BCS 9296054 A000; 12/09/1991; $25,500; 4 mo.

Response of Earth Dams to Spatially Varying Earthquake-Induced Ground Motion
Harichandran, Ronald; Michigan State University, East Lansing, MI 48824
BCS 9121292 A000; 06/01/1992; $3,882; 24 mo.

Verification of Soil Liquefaction Analysis by Coordinated Geotechnical Centrifuge Studies
Ko, Hon-Yim; Sture, Stein; University of Colorado at Boulder, Boulder, CO 80309
BCS 9000379 A002; 12/01/1989; $47,955; 12 mo.
BCS 9000379 A003; 12/01/1989; $18,518; 0 mo.

Prediction of Soil Liquefaction in Centrifuge Model Tests
Lacy, Sara; Tufts University, Medford, MA 02155
BCS 9120187 A000; 01/15/1992; $19,980; 18 mo.

U.S.-Costa Rica Workshop on the Effects on Soils and Structures of the 1990 and 1991 Costa Rican Earthquakes
Leon, Roberto; Tubbesing, Susan; Stepp, J.; Youd, T. Leslie; Santana, G.; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9212509 A000; 04/01/1992; $20,300; 9 mo.
Jointly Funded with STRUCTURAL SYSTEMS $5,075

Cooperative Research: Three-Dimensional Effects of Tsunami Run-Up onto a Coastline
Liu, Philip; Cornell University - Endowed, Ithaca, NY 14853
BCS 9115552 A000; 03/01/1992; $130,680; 12 mo.

Support for National Academy of Sciences/NRC Committee on Seismology
Long, Robert; National Academy of Sciences, Washington, DC 20418
BCS 9108997 A001; 07/01/1991; $17,500; 0 mo.

High Strain Dynamic Moduli and Damping Characteristics of Treated Soils
Maher, Mohamad; Welsh, J.; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
BCS 9110381 A000; 02/01/1992; $114,540; 24 mo.

Prediction of Soil Liquefaction in Centrifuge Model Tests
Mish, Kyran; Herrmann, Leonard; Dafalias, Yannis; University of California-Davis, Davis, CA 95616-8671
BCS 9120215 A000; 01/15/1992; $20,000; 18 mo.

Presidential Young Investigator Award - Soil-Structure Interaction Under Earthquake Loading
Pak, Ronald; University of Colorado at Boulder, Boulder, CO 80309
BCS 8958402 A003; 07/01/1989; $62,500; 12 mo.

Workshop on Geotechnical Earthquake Instrumentation for Seismic Hazard Reduction; Santiago, Chile, Jan. 1992
Poran, Chaim; University of North Carolina at Charlotte, Charlotte, NC 28223
INT 9115088 A000; 01/15/1992; $37,080; 9 mo.

Soil Profiling at the Geotechnical Experimentation Site of Treasure Island, CA
Poran, Chaim; University of North Carolina at Charlotte, Charlotte, NC 28223
BCS 9211431 A000; 06/15/1992; $8,797; 12 mo.
Jointly Funded with TRANSPORTATION-TREASURE ISLAND $7,797

Verification of Soil Liquefaction Analysis by Coordinated Geotechnical Centrifuge Studies
Prevost, Jean Herve; Princeton University, Princeton, NJ 08544
BCS 8922869 A002; 02/01/1990; $63,753; 12 mo.

Prediction of Soil Liquefaction in Centrifuge Model Tests
Prevost, Jean Herve; Princeton University, Princeton, NJ 08544
BCS 9120028 A000; 01/15/1992; $46,516; 18 mo.

Tsunamis (Seismic Sea Waves): An Investigation of Overland Flow and Wave-Structure Interaction
Raichlen, Fredric; California Institute of Technology, Pasadena, CA 91125
BCS 9115422 A000; 01/15/1992; $128,997; 12 mo.

Prediction of Soil Liquefaction in Centrifuge Model Tests
Rollins, Kyle; Brigham Young University, Provo, UT 84602
BCS 9120233 A000; 02/01/1992; $15,000; 18 mo.

Prediction of Soil Liquefaction in Centrifuge Model Tests
Roth, Wolfgang; Dames & Moore, A Professional Limited Partnership Co., Los Angeles, CA 90017
BCS 9120153 A000; 02/01/1992; $19,740; 18 mo.

Verification of Soil Liquefaction Analysis by Coordinated Geotechnical Centrifuge Studies
Schofield, Andrew; Steedman, R. Scott; Cambridge University, Cambridge, UK
BCS 9000927 A002; 12/15/1989; $33,600; 12 mo.

Verification of Soil Liquefaction Analysis by Coordinated Geotechnical Centrifuge Studies
Scott, Ronald; California Institute of Technology, Pasadena, CA 91125
BCS 9000390 A002; 12/01/1989; $88,646; 12 mo.

Committee to Oversee the Design and Performance of an Earthquake Simulator for the National Geotechnical Centrifuge in Davis, CA
Scott, Ronald; California Institute of Technology, Pasadena, CA 91125
BCS 9215039 A000; 06/15/1992; $39,921; 12 mo.

Prediction of Soil Liquefaction in Centrifuge Model Tests
Siddharthan, Raj; University of Nevada-Reno, Reno, NV 89557
BCS 9120062 A000; 02/01/1992; $19,779; 18 mo.

Equipment for Dynamic Experiments
Stanton, John; Holtz, Robert; Reed, Dorothy; Haraldsdottir, Aslaug; Roeder, Charles; University of Washington, Seattle, WA 98195
BCS 9109346 A000; 11/01/1991; $85,000; 16 mo.
Jointly Funded with STRUCTURAL SYSTEMS $30,000

ESG1992 Symposium on the Effects of Surface Geology on Seismic Motion
Stepp, J.; Electric Power Research Institute, Palo Alto, CA 94303
BCS 9208836 A000; 03/01/1992; $11,189; 12 mo.

Prediction of Soil Liquefaction in Centrifuge Model Tests
Sture, Stein; Ko, Hon-Yim; Pak, Ronald; University of Colorado at Boulder, Boulder, CO 80309
BCS 9120414 A000; 02/01/1992; $20,000; 18 mo.

Cooperative Research: Three-Dimensional Effects of Tsunami
Synolakis, Costas; University of Southern California, Los Angeles, CA 90089
BCS 9201326 A000; 03/01/1992; $55,681; 12 mo.

Verification of Soil Liquefaction Analysis by Coordinated Geotechnical Centrifuge Studies
Thompson, Paul; University of Florida, Gainesville, FL 32611
BCS 8922867 A002; 11/15/1989; $18,918; 12 mo.
BCS 8922867 A003; 11/15/1989; $10,875; 0 mo.

Travel Funds for U.S. Attendees to the Tenth World Conference on Earthquake Engineering to be held in Madrid, Spain on July 19-24, 1992
Tubbesing, Susan; McGuire, Robin; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9120748 A000; 11/15/1991; $109,968; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $27,492

Seismic Behavior of Soil Nailed Walls in the San Francisco Bay Area During the 1989 Loma Prieta Earthquake
Vucetic, Mladen; University of California-Los Angeles, Los Angeles, CA 90024
BCS 9011819 A001; 06/01/1990; $5,766; 6 mo.

Verification of Soil Liquefaction Analysis by Coordinated Geotechnical Centrifuge Studies
Whitman, Robert; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9000378 A002; 12/01/1989; $46,283; 12 mo.

Dynamic Shear Properties of Geosynthetics Interfaces Relevant to Earthquake Hazard Mitigation
Yegian, Mishac; Evans, Mark; Northeastern University, Boston, MA 02115
BCS 9113177 A000; 01/15/1992; $137,011; 24 mo.

Cooperative Research: Three-Dimensional Effects of Tsunami Run-Up onto a Coastline
Yeh, Harry; University of Washington, Seattle, WA 98195
BCS 9201325 A000; 03/01/1992; $203,076; 12 mo.

Prediction of Soil Liquefaction in Centrifuge Model Tests
Yogachandran, C.; Mahdyiar, M.; Mukhopadhyay, G.; Phukunhaphan, A.; Leighton and Associates Inc., Diamond Bar, CA 91765
BCS 9120359 A000; 04/01/1992; $14,800; 18 mo.

Effect of Spatial and Directional Variability of Seismic Ground Motion on the Response of Structures
Zerva, Aspasia; Drexel University, Philadelphia, PA 19104
BCS 9114895 A000; 02/01/1992; $127,469; 24 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $63,734

Structural Systems

Behavior of Clay Brick and Concrete Masonry Infill Wall
Abrams, Daniel; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9016509 A002; 09/01/1990; $64,000; 12 mo.

Safety and Performance Enhacement of Structures Through Structural Control
Ang, A. H-S.; University of California-Irvine, Irvine, CA 92717
BCS 9201812 A000; 07/01/1992; $66,147; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS and NAT AND MAN-MADE HAZARD MITIGATI $28,074

Earthquake Stability Problems in Eastern North America
Beedle, Lynn; Fox, Gerard; Lehigh University, Bethlehem, PA 18015
BCS 9123255 A000; 04/01/1992; $20,000; 12 mo.
Jointly Funded with CONSTRCT PROCES $5,000

Hysteresis Rules and Design Parameters Assessment of RC Low-Rise Shear Walls and Buildings with Openings
Cheng, Franklin; University of Missouri-Rolla, Rolla, MO 65401
BCS 9001494 A001; 04/01/1990; $5,250; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,625

Multi-Objective Optimization of 3-D Flexible and Stiff Structures with Compromise and Game Algorithms
Cheng, Franklin; University of Missouri-Rolla, Rolla, MO 65401
MSS 9214664 A000; 09/01/1992; $80,000; 24 mo.

International Travel Grant to Attend U.S.-Korea Seminar on Nonlinear Models etc. and U.S.-Hong Kong Seminar on Optimum Design and Control of Tall Buildings, Sept. 14-20, 1992
Cheng, Franklin; Travel Award, Washington, DC 20550
BCS 9222874 A000; 09/01/1992; $3,410; 6 mo.

AIT (U.S.)-CCNAA (Taiwan) Cooperative Research: High-Resolution 3-D Crustal Imaging for the Hualien Area of Central Eastern Taiwan
Chiu, Jer-Ming; Smalley, Robert; Johnston, Arch; Pujol, Jose; Memphis State University, Memphis, TN 38152
INT 9121081 A000; 06/01/1992; $24,100; 24 mo.

Earthquake Analysis, Design, and Safety Evaluation of Concrete Dams
Chopra, Anil; University of California-Berkeley, Berkeley, CA 94720
BCS 9121943 A000; 04/01/1992; $148,687; 12 mo.

Influence of Nonstationary Characteristics of Earthquake Ground Motions on Inelastic Structural Response
Conte, J.; William Marsh Rice University, Houston, TX 77252
BCS 9210585 A000; 06/01/1993; $86,302; 36 mo.

Retrofit Strategies for Non-Ductile Reinforced Concrete Flat-Slab Buildings
Durrani, Ahmad; William Marsh Rice University, Houston, TX 77252
BCS 9221522 A000; 09/15/1992; $100,000; 24 mo.

Seismic Strengthening of Unreinforced Masonry Structures with Fiber Composite Fabrics
Ehsani, Mohammad; Saadatmanesh, Hamid; University of Arizona, Tucson, AZ 85721
BCS 9201110 A000; 01/15/1992; $35,000; 12 mo.

R/R: Strengthening and Repair of Nonductile Reinforced Concrete Frames Using External Steel Jackets and Plates (Collaborative Research)
Engelhardt, Michael; Kreger, Michael; Jirsa, James; University of Texas at Austin, Austin, TX 78712
BCS 9016828 A001; 08/15/1990; $59,500; 12 mo.

Presidential Young Investigator Award
Fenves, Gregory; University of California-Berkeley, Berkeley, CA 94720
BCS 8896121 A006; 01/01/1988; $37,500; 12 mo.

Presidential Young Investigator Award
French, Catherine; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 8451536 A009; 06/01/1985; $15,000; 9 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $11,250

Active Control of Structures Using Neural Networks
Ghaboussi, Jamshid; Wen, Y.; Paul, Stanley; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9201437 A000; 06/15/1992; $46,439; 12 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI $10,000

Hybrid Control of Building Seismic Response Using Architectural Cladding
Goodno, Barry; Calise, Anthony; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 9202039 A000; 07/01/1992; $87,651; 12 mo.

Risk-Based Decisionmaking in Water Resources Management
Haimes, Yacov; Stakhiv, Eugene; United Engineering Trustees Inc., New York, NY 10017
BCS 9109320 A001; 09/15/1991; $10,000; 0 mo.

Earthquake Behavior of Multiple Arch Dams
Hall, John; California Institute of Technology, Pasadena, CA 91125
BCS 9203927 A000; 08/15/1992; $59,756; 12 mo.

Structural Control for Earthquakes and Wind Storms Using Active Structural Members
Hanson, Robert; Filisko, Frank; McClamroch, Nathaniel; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9201787 A000; 07/15/1992; $103,448; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $26,000

Modified TCCMAR 5-Story RM Research Building
Hegemier, Gilbert; Seible, Frieder; Priestley, M.J. Nigel; University of California-San Diego, San Diego, CA 92093
BCS 9102430 A001; 04/01/1991; $248,960; 12 mo.

U.S. Panel on Structural Control Research
Housner, George; Masri, Sami; California Universities for Research in Earthquake Engineering, Richmond, CA 94804
BCS 9001256 A003; 03/01/1990; $82,375; 12 mo.

Presidential Young Investigator Award
Igusa, Takeru; Northwestern University, Evanston, IL 60208
BCS 8858549 A004; 09/01/1988; $62,500; 12 mo.

Effects of Lifeline Interaction on Seismic Performance of Telecommunications Networks
Isenberg, Jeremy; Wong, Felix; Weidlinger Associates Inc., New York, NY 10001
BCS 9212244 A000; 09/15/1992; $119,954; 24 mo.

U.S./P.R.C. Workshop on Experimental Methods in Earthquake Engineering
Krawinkler, Helmut; Stanford University, Stanford, CA 94305
BCS 9210034 A000; 04/15/1992; $29,895; 6 mo.

A Dynamic Monitoring System for Steel Structures
Lee, George; Chang, Kuo-Chun; SUNY at Buffalo, Amherst, NY 14228
MSS 9202327 A000; 08/01/1992; $28,266; 12 mo.

US-Japan Seminar on Stability of Steel Structures Under Cyclic Loading and US-Taiwan Workshop on Analysis and Design of Structures with Enhanced Damping Capacity
Lee, George; Travel Award, Washington, DC 20550
BCS 9216159 A000; 05/15/1992; $3,612; 6 mo.

U.S.-Costa Rica Workshop on the Effects on Soils and Structures of the 1990 and 1991 Costa Rican Earthquakes
Leon, Roberto; Tubbesing, Susan; Stepp, J.; Youd, T. Leslie; Santana, G.; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9212509 A000; 04/01/1992; $20,300; 9 mo.
Jointly Funded with SITING AND GEOTECHNICAL SYSTEMS $5,075

Passive Smart Cementitious Composites for Dynamic Control Structures: Internal Timed Release of Chemicals for Self-Repair of Crack Damage
Li, Victor; Dry, Carolyn; University of Michigan-Ann Arbor, Ann Arbor, MI 481091220
BCS 9202097 A000; 09/15/1992; $150,000; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS and SPECIAL PROGRAMS $100,639

Active Tuned Liquid Damper for Structural Control
Lou, Jack; Lutes, Loren; Texas A&M University Research Foundation, College Station, TX 77843
BCS 9202092 A000; 09/01/1992; $88,621; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $14,541

Studies of Integration and Implementation Issues in the Active Control of Lifeline Systems
Masri, Sami; University of Southern California, Los Angeles, CA 90089
BCS 9203994 A000; 07/01/1992; $94,466; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS and NAT AND MAN-MADE HAZARD MITIGATI $57,233

Testing of I-40 Bridges Spanning the Rio Grande
Matthews, Larryl; White, Kenneth; New Mexico State University, Las Cruces, NM 88003
BCS 9218229 A000; 09/01/1992; $29,962; 12 mo.

Fast System Identification Using Building Seismic Records and Site Response Study for Microzonation (US-Taiwan/IDNDR)
Mau, S.; University of Houston, Houston, TX 77204
BCS 9201546 A000; 03/15/1992; $157,906; 36 mo.

Presidential Young Investigator Award - Seismic Analysis and Design of Unanchored Liquid Storage Tanks
Peek, Ralf; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 8857002 A005; 09/15/1988; $25,000; 12 mo.

Seismic Retrofit with Energy Dissipators
Popov, Egor; University of California-Berkeley, Berkeley, CA 94720
BCS 9016781 A001; 11/15/1990; $60,597; 12 mo.

Evaluation of the Strength, Stiffness, and Ductility of Older Steel Frame Structures
Roeder, Charles; University of Washington, Seattle, WA 98195
BCS 9016714 A002; 10/01/1990; $30,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $26,250
BCS 9016714 A003; 10/01/1990; $90,000; 12 mo.

Recent Advances in Adaptive and Sensory Materials and their Applications Conference; April 27-29, 1992 in Blacksburg, Virginia
Rogers, Craig; Feuerbach, Nancy; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9210446 A000; 04/01/1992; $10,000; 12 mo.

R/R: Strengthening and Repair of Nonductile Reinforced Concrete Frames Using External Steel Jackets and Plates (Collaborative Research)
Sabol, Thomas; Englekirk and Sabol Consulting Engineers, Inc., Los Angeles, CA 900181398
BCS 9016867 A001; 10/01/1990; $5,948; 9 mo.

R/R: Behavior of Clay Brick and Concrete Masonry Infill Walls
Shapiro, Daniel; SOH & Associates Structural Engineers, San Francisco, CA 94133
BCS 9016875 A002; 09/01/1990; $16,000; 12 mo.

Presidential Young Investigator Award
Shing, Pui-Shum; University of Colorado at Boulder, Boulder, CO 80309
BCS 8658100 A006; 07/15/1987; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $5,000
BCS 8658100 A007; 07/15/1987; $37,500; 0 mo.

Development of Adaptive Hybrid Control Techniques for Building Structures
Shing, Pui-Shum; Frangopol, Dan; Su, Renjeng; Mikulas, Martin; University of Colorado at Boulder, Boulder, CO 80309
BCS 9201962 A000; 06/15/1992; $66,539; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $23,269

Presidential Young Investigator Award - Analytical Modeling of Structures and Applications in Earthquake Engineering
Smith, H. Allison; Stanford University, Stanford, CA 94305
BCS 9058316 A003; 08/01/1990; $37,500; 0 mo.
BCS 9058316 A004; 08/01/1990; $25,000; 12 mo.

US/PRC/Japan Trilateral Seminar/Workshop on Structural Control
Soong, Tsu-Teh; SUNY at Buffalo, Amherst, NY 14228
BCS 9216282 A000; 07/01/1992; $20,600; 12 mo.
Jointly Funded with CONSTRCT PROCES $5,000

An Experimental Investigation of the Dynamic Torsional-Translational Response of Reinforced Concrete Building Structrues
Sozen, Mete; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9023501 A002; 01/15/1991; $115,000; 12 mo.

Robust Feedback Control of Structures for Earthquake Hazard Mitigation
Spencer, Billie; Sain, Michael; University of Notre Dame, Notre Dame, IN 46556
BCS 9006781 A002; 11/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $8,750

Equipment for Dynamic Experiments
Stanton, John; Holtz, Robert; Reed, Dorothy; Haraldsdottir, Aslaug; Roeder, Charles; University of Washington, Seattle, WA 98195
BCS 9109346 A000; 11/01/1991; $85,000; 16 mo.
Jointly Funded with SITING AND GEOTECHNICAL SYSTEMS $10,000

Travel Funds for U.S. Attendees to the Tenth World Conference on Earthquake Engineering to be held in Madrid, Spain on July 19-24, 1992
Tubbesing, Susan; McGuire, Robin; Earthquake Engineering Research Institute, El Cerrito, CA 94704
BCS 9120748 A000; 11/15/1991; $109,968; 12 mo.
Jointly Funded with SITING AND GEOTECHNICAL SYSTEMS $27,492

An Experimental and Analytical Investigation of Knee Joints Subjected to Cyclic Loads
Wallace, John; Clarkson University, Potsdam, NY 13676
BCS 9123759 A000; 06/15/1992; $80,000; 24 mo.

Reliability Evaluation of Current Design Procedures for Steel Buildings Under Seismic Loads
Wen, Y.; Foutch, Douglas; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9106390 A001; 08/15/1991; $132,804; 12 mo.

Experimental Evaluation of Slab-Column Frame Buildings and the Use of Ductile Steel
Wight, James; Goel, Subhash; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9016863 A002; 09/01/1990; $71,845; 12 mo.

Earthquake Type Loading on R/C Beams to Column Connections with Wide Beams
Wight, James; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9122704 A000; 07/15/1992; $147,172; 24 mo.

Strengthening and Repair of Nonductile Reinforced Concrete Frames Using External Steel Jackets and Plates (Collaborative Research)
Wyllie, Loring; H.J. Degenkolb Associates Engineers, San Francisco, CA 94104
BCS 9016873 A002; 09/01/1990; $11,740; 12 mo.

Identification and Active Control of Structures Under Earthquake Loadings
Yang, Jackson; Amini, Farshad; Qi, Gui-Zhong; University of Maryland-College Park, College Park, MD 20742
BCS 9114047 A001; 06/01/1991; $14,400; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $8,750

Hybrid Control of Seismic Response of Bridge Structures: A Coordinated Effort Between the U.S. and Japan
Yang, Jann; University of California-Irvine, Irvine, CA 92717
BCS 9120128 A000; 02/15/1992; $107,921; 12 mo.

Full-Scale Active Control Research and Implementation
Yang, Jann; University of California-Irvine, Irvine, CA 92717
BCS 9122046 A000; 01/01/1992; $125,000; 12 mo.

Active Control of Structure Instrumented with Optical Fiber Sensors Under Earthquake Loading
Yang, Jackson; Sirkis, James; Amini, Farshad; Qi, Gui-Zhong; University of Maryland-College Park, College Park, MD 20742
BCS 9202159 A000; 07/01/1992; $58,253; 12 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI $4,418

Presidential Young Investigator Award - Stochastic Modeling of Earthquakes
Yong, Yan; Florida Atlantic University, Boca Raton, FL 33431
BCS 9057052 A002; 07/15/1990; $62,500; 12 mo.

Seismic Rehabilitation of Unreinforced Building Structures Using Post-Tensioned Steel Braces
Youssef, Nabih F.; Bertero, Vitelmo; Guh, T. Jeff; Nabih Youssef & Associates Inc., Los Angeles, CA 90017
BCS 9221527 A000; 09/01/1992; $40,230; 12 mo.

ENVIRONMENTAL AND OCEAN SYSTEMS PROGRAM

Environmental Engineering

Stability of HIV Viral RNA in Environmental Conditions
Abbaszadegan, Morteza; Gerba, Charles; University of Arizona, Tucson, AZ 85721
BCS 9208837 A000; 03/01/1992; $50,000; 12 mo.

Second Forum on NSF Research in Subsurface Systems
Abriola, Linda; Hayes, Kim; Demond, Avery; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9121895 A000; 03/01/1992; $26,206; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $13,103

NYI: Advanced Oxidation Processes for Water and Wastewater Treatment
Adams, Craig; Clemson University, Clemson, SC 29634
BCS 9257625 A000; 09/01/1992; $25,000; 12 mo.

Electron Beam Sterilization of Infectious Hospital Waste
Adler, Richard; North Star Research Corporation, Albuquerque, NM 87108
III 9161254 A000; 02/01/1992; $49,988; 6 mo.

Supercritical Extraction of Organic Contaminants from Water Slurries
Akgerman, Aydin; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
BCS 9114848 A000; 03/01/1992; $69,274; 12 mo.

Presidential Young Investigator Award - Physiological Aspects of Microbial Sulfur Transformations of Relevance to Concrete Corrosion
Arnold, Robert; University of Arizona, Tucson, AZ 85721
BCS 8658002 A007; 08/01/1987; $62,500; 12 mo.
BCS 8658002 A008; 08/01/1987; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $8,750

Use of Imaging Spectrometry for Turbidity Analysis in Nearshore/Estuarine Waters
Bagheri, Sima; The Foundation at NJIT, Newark, NJ 07102
BCS 9210232 A000; 09/15/1992; $15,575; 12 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $6,176

Solute Transport in Seasonal Snowpacks
Bales, Roger; University of Arizona, Tucson, AZ 85721
BCS 9018245 A001; 02/15/1991; $5,000; 0 mo.
BCS 9018245 A002; 02/15/1991; $72,034; 12 mo.

Presidential Young Investigator Award: Uptake and Release Mechanisms for Organic Contaminants in Soils and Aqueous Systems
Ball, William; Duke University, Durham, NC 27708
BCS 9157902 A001; 07/15/1991; $15,229; 0 mo.

Engineering Research Equipment Grant: Total Organic Carbon Analyzer
Ball, William; Johns Hopkins University, Baltimore, MD 21218
BCS 9296219 A000; 08/01/1992; $19,730; 4 mo.

Presidential Young Investigator Award: Uptake and Release Mechanisms for Organic Contaminants in Soils and Aqueous Systems
Ball, William; Johns Hopkins University, Baltimore, MD 21218
BCS 9296241 A000; 08/01/1992; $35,850; 16 mo.

Presidential Faculty Fellow: Refuse Decomposition in Sanitary Landfills
Barlaz, Morton; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
BCS 9253789 A000; 09/01/1992; $100,000; 12 mo.

Advanced Concept for Waste Gas Pollution Control
Bayless, John; John R. Bayless Co., Malibu, CA 90265
III 9122767 A000; 06/01/1992; $250,000; 18 mo.

International Travel Award to Attend the Eighth International Meeting in Radiation Processing, September 13-18, 1992 in Beijing, China
Berejka, Anthony; Travel Award, Washington, DC 20550
BCS 9221949 A000; 08/15/1992; $2,800; 6 mo.

Fate and Treatability of Semivolatile Organic Chemicals (SVOCs) in Wastewater Treatment Processes
Berthouex, Paul; Boyle, William; Armstrong, David; Park, J.K.; University of Wisconsin-Madison, Madison, WI 53706
BCS 8817422 A002; 03/01/1989; $89,750; 12 mo.

Discriminant Upset Prediction: An Early-Warning Indicator of Process Upsets
Berthouex, Paul; University of Wisconsin-Madison, Madison, WI 53706
BCS 9113124 A001; 09/01/1991; $98,700; 12 mo.

Use of Microbial Assays to Distinguish Between Heavy Metal and Organic Chemical Toxicity
Bitton, Gabriel; Koopman, Ben; University of Florida, Gainesville, FL 32611
BCS 9117267 A000; 03/15/1992; $127,668; 12 mo.

Contaminant Transport Processes Between Water and Sediment Beds in Rivers
Brooks, Norman; Morgan, James; Koh, Robert; California Institute of Technology, Pasadena, CA 91125
BCS 9105965 A001; 07/15/1991; $120,622; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $50,000

NYI: Modeling Complex Environmental Systems Subject to Random Forcing Fluxes
Buchberger, Steven; University of Cincinnati-Main Campus, Cincinnati, OH 45221
BCS 9257608 A000; 09/01/1992; $25,000; 12 mo.

HIV in Wastewater: Presence and Viability
Casson, Leonard; Gupta, Phalguni; University of Pittsburgh, Pittsburgh, PA 15260
BCS 9120340 A000; 04/15/1992; $134,267; 12 mo.

Presidential Young Investigator Award - Scale Issues in Subsurface Contaminant Transport
Celia, Michael; Princeton University, Princeton, NJ 08544
BCS 8996311 A003; 09/01/1989; $37,500; 0 mo.

Development and Evaluation PCR Technology for the Detection and Identification of HIV-I in Wastewater
Chaudhry, G. Rasul; Oakland University, Rochester, MI 48309-4401
BCS 9018567 A001; 02/01/1991; $9,999; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500
BCS 9018567 A002; 02/01/1991; $5,000; 0 mo.

Conference on Historical Records, Environmental Impact and Remediation of Contaminated Aquatic Sediments, June 14-16, 1993
Christensen, Erik; University of Wisconsin-Milwaukee, Milwaukee, WI 53201
BCS 9217593 A000; 08/15/1992; $10,828; 15 mo.

Atmospheric-Biospheric Interactions of Ozone, Hydrogen Peroxide and Sulfur Dioxide: Pollutant Transport and Plant Feedback Responses
Claiborn, Candis; Washington State University, Pullman, WA 99164-3140
BCS 9212192 A000; 07/01/1992; $40,280; 12 mo.

Presidential Young Investigator Award
Clark, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9057387 A002; 09/01/1990; $62,500; 12 mo.

Flocculation Kinetics Using Ferric and Dual Coagulants
Cleasby, John; Iowa State University, Ames, IA 50011
BCS 9117043 A000; 03/01/1992; $88,913; 12 mo.

Investigation of Trace Metal Sequestering by Polyphosphate Bodies in Picoplankton
Corpe, William; Jensen, Thomas; Columbia University, New York, NY 10027
BCS 9117165 A000; 03/15/1992; $49,236; 12 mo.

Removal of Organic Pollutants from Water Fixed-Bed Adsorption and Photocatalytic Regeneration of the Adsorbent
Crittenden, John; Hand, David; Mullins, Michael; Michigan Technological University, Houghton, MI 49931
BCS 9103307 A001; 09/01/1991; $103,144; 12 mo.

Presidential Young Investigator Award: Underlying Mechanisms Affecting Physical and Chemical Processes in Aqueous Systems
Darby, Jeannie; University of California-Davis, Davis, CA 95616-8671
BCS 9057668 A002; 09/01/1990; $62,500; 12 mo.

Surfactant-Enhanced Extraction of Residual Halogenated Organic Liquids from Sandy Aquifer Materials
Dawson, Helen; Colorado School of Mines, Golden, CO 80401
BCS 9210174 A000; 08/01/1992; $17,870; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $17,870

Engineering an Innovative System for Utilizing Organic Waste Materials in the Production of Grass Sods
Decker, Henry; Buckeye Bluegrass Farms Inc., Ostrander, OH 43061
III 8902053 A002; 09/01/1989; $3,959; 0 mo.

Continued Core Support of the Water Science and Technology Board
Dwoskin, Gary; Parker, Stephen; National Academy of Sciences, Washington, DC 20418
BCS 9215040 A000; 06/01/1992; $15,000; 12 mo.

Presidential Young Investigator Award: Research in Aquatic Surface Chemistry Related to Solute Transport in Soil and Aquifers and in Adsorption Treatment of Water and Wastewater
Dzombak, David; Carnegie-Mellon University, Pittsburgh, PA 15213
BCS 9157086 A001; 09/15/1991; $4,972; 0 mo.
BCS 9157086 A002; 09/15/1991; $62,500; 12 mo.

Presidential Young Investigator Award: Novel Approaches to Environmental Systems
Gallagher, Daniel; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
BCS 8957428 A003; 08/15/1989; $62,500; 12 mo.

Stochastic Analysis of Large-Scale Transport Processes in Aquifers
Gelhar, Lynn; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 8814615 A003; 01/01/1989; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $5,000

Presidential Young Investigator Award
Gorelick, Steven; Stanford University, Stanford, CA 94305
BCS 8957186 A003; 07/01/1989; $62,500; 12 mo.

Factors Influencing the Stability of Catabolic Plasmids
Grady, C.; Clemson University, Clemson, SC 29634
BCS 9020944 A001; 03/15/1991; $119,595; 12 mo.

Presidential Young Investigator Award: Mechanisms of Chemical Reactions in Water and Wastewater Treatment Processes, Photocatalytic Degradation of Hazardous Chemicals
Gray, Kimberly; University of Notre Dame, Notre Dame, IN 46556
BCS 9157948 A001; 07/15/1991; $62,500; 12 mo.

Investigating Automated Biomonitoring as a Management Tool Toward the Elimination of Pollutants That Adversely Affect Aquatic Environmental Quality
Gruber, David; Biological Monitoring Inc., Blacksburg, VA 24063
III 9161351 A000; 01/01/1992; $49,266; 6 mo.

Evaluation of a Vertical Fiber Membrane Aerator
Gulliver, John; Semmens, Michael; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 9123175 A000; 04/15/1992; $102,023; 12 mo.

Chemical Oxidation Processes Involving Ozone, Hydrogen Peroxide and Ultraviolet Radiation
Gurol, Mirat; Drexel University, Philadelphia, PA 19104
BCS 9020028 A001; 03/01/1991; $110,026; 12 mo.

Detection of Human Pathogenic Viruses in Aquatic Environments Using the Polymerase Chain Reaction
Harleman, Donald; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9201324 A000; 06/15/1992; $77,900; 12 mo.

Presidential Young Investigator Award: Effects of Interfacial Properties on Contaminant Transport and Transformations in Aquatic Systems
Hayes, Kim; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 8958407 A003; 09/01/1989; $37,500; 0 mo.
BCS 8958407 A004; 09/01/1989; $25,000; 12 mo.

NYI: Metal-Organic Interactions in Sorption of Metals and Organic Compounds on Mineral Surfaces
Hering, Janet; University of California-Los Angeles, Los Angeles, CA 90024
BCS 9258431 A000; 09/01/1992; $25,000; 12 mo.

Presidential Young Investigator Award: Sources, Chemistry and Fates of Atmospheric Organic Aerosols
Hildemann, Lynn; Stanford University, Stanford, CA 94305
BCS 9157905 A001; 08/01/1991; $62,500; 12 mo.

Use of Halophilic Organisms to Treat Highly Saline Wastewaters
Irvine, Robert; University of Notre Dame, Notre Dame, IN 46556
BCS 9205594 A000; 09/01/1992; $113,651; 12 mo.

An EPRI Symposium on Environmental Applications of Advanced Oxidation Technologies
Jones, Myron; Electric Power Research Institute, Palo Alto, CA 94303
BCS 9222559 A000; 09/15/1992; $12,000; 12 mo.

The Effects of Surface Concentration and Particle Interaction on the Structure and Composition of Surface Complexes
Katz, Lynn; University of Maine, Orono, ME 04469-0114
BCS 9210869 A000; 06/15/1992; $33,287; 12 mo.

An Investigation of the Distribution and Role of Protozoa in an Organically Contaminated Subsurface Environment
Kinner, Nancy; University of New Hampshire-Durham, Durham, NH 03824
BCS 9012183 A002; 07/01/1990; $55,698; 12 mo.

Development and Field Verification of Sorption/Oxidation Models for Soluble Manganese Removal by Oxide-Coated Filtration Systems
Knocke, William; Gallagher, Daniel; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
BCS 9123770 A000; 04/15/1992; $78,196; 12 mo.

Presidential Young Investigator Award: Effects of Airborne Particulate Matter on Atmospheric Radiative Transfer
Larson, Susan; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9157283 A001; 08/01/1991; $62,500; 12 mo.

Feasibility of Utilizing Optical Fibers for Multicontaminant Monitoring of Unsaturated Environmental Systems
Leonard, Kathleen; University of Alabama in Huntsville, Huntsville, AL 35899
BCS 9210283 A000; 09/01/1992; $17,864; 18 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $17,864

Presidential Young Investigator Award: Ecosystem Approach to Modeling of Biological Processes
Liehr, Sarah; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
BCS 9296019 A000; 10/01/1991; $35,095; 9 mo.
BCS 9296019 A001; 10/01/1991; $34,000; 12 mo.

Interactions of Toxic Trace Metals with Multi-Component Biofilms: A Mechanistic Approach
Lion, Leonard; Shuler, Michael; Ghiorse, William; Cornell University - Endowed, Ithaca, NY 14853
BCS 9100209 A000; 01/15/1992; $174,076; 12 mo.

Biodegradation of Macromolecules in Complex Wastewaters
Logan, B.; University of Arizona, Tucson, AZ 85721
BCS 8912893 A003; 03/01/1990; $10,000; 0 mo.
BCS 8912893 A004; 03/01/1990; $88,126; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $5,000

Biosensor Electrode for Detection of HIV
Mancy, Khalil; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9213783 A000; 04/15/1992; $50,000; 12 mo.

Presidential Young Investigator Award: Visual Analyses of Multicomponent Immiscible Flow in Heterogeneous Porous Media
Massmann, Joel; University of Washington, Seattle, WA 98195
BCS 9296097 A000; 01/06/1992; $78,800; 12 mo.
BCS 9296097 A001; 01/06/1992; $25,000; 12 mo.

Optimization of Freshwater Inflows to Estuaries
Mays, Larry; Arizona State University, Tempe, AZ 85287
BCS 9104406 A001; 09/01/1991; $66,851; 12 mo.

Investigation of a Bioremediation Process Based on Novel Immobilized Enzymes
McCray, Scott; Bend Research Inc., Bend, OR 97701-8599
III 9160467 A000; 01/01/1992; $49,934; 6 mo.

High-Energy Electrons for the Treatment of Wastewater
Milde, Helmut; Ion Physics Corporation, Atkinson, NH 03811
III 9102523 A000; 11/01/1991; $229,908; 24 mo.

Apparatus for Water Treatment by Application of High Potential Gradients
Milde, Helmut; Ion Physics Corporation, Atkinson, NH 03811
III 9206800 A000; 09/01/1992; $250,000; 1 mo.

Strong Chelators in Natural Waters
Morel, Francois; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9113483 A000; 01/01/1992; $110,790; 12 mo.

Presidential Young Investigator Award: Indoor Air Pollutant Transport, Dispersion and Interactions with Surfaces
Nazaroff, William; University of California-Berkeley, Berkeley, CA 94720
BCS 9057298 A002; 09/01/1990; $62,500; 12 mo.

Colloidal Stability in Aquatic Environments: Theory, Measurements, and Applications
O'Melia, Charles; Johns Hopkins University, Baltimore, MD 21218
BCS 9112766 A001; 08/01/1991; $83,050; 12 mo.

NYI: Surface Chemical Factors Governing Colloidal Transport in Porous Media and Natural Systems
Olson, Terese; University of California-Irvine, Irvine, CA 92717
BCS 9257896 A000; 09/01/1992; $25,000; 12 mo.

Rate of Reduction of Cr (VI) by Soil Humic Substances
Palmer, Carl; Fish, William; Oregon Graduate Institute of Science & Technology, Beaverton, OR 97006-1999
BCS 9112148 A001; 09/01/1991; $75,425; 12 mo.

In Situ Bioremediation: How Do We Know When It Works?
Parker, Stephen; National Research Council, Washington, DC 20418
BCS 9213271 A000; 04/01/1992; $10,000; 12 mo.

Presidential Young Investigator Award: Characterization and Removal of Recalcitrant Organic Matter from Water
Reckhow, David; University of Massachusetts-Amherst, Amherst, MA 01003
BCS 8958392 A005; 09/01/1989; $62,500; 12 mo.

Solute Transport in Channelized Fractured Porous Media
Roberts, Paul; Stanford University, Stanford, CA 94305
BCS 8821060 A002; 04/15/1989; $128,999; 12 mo.

Engineering Research Equipment: A LaB 6 Electron Source for an Environmental SEM for Bioengineering Research
Ross, Timothy; Barton, Larry; University of New Mexico, Albuquerque, NM 87131
BCS 9212505 A000; 07/15/1992; $10,600; 12 mo.

Surfactant Selection for Use in Enhanced Remediation of Petroleum Contaminated Ground Water: Surfactant Enhanced Subsurface Flushing and Micellar-Enhanced Ultrafiltration
Sabatini, David; University of Oklahoma-Norman Campus, Norman, OK 73019
BCS 9110780 A001; 07/01/1991; $9,375; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $4,688

Identification of N-Chloroaldimines in Chlorinated Municipal Wastewater
Scully, Frank; Old Dominion University, Norfolk, VA 23508-0369
BCS 9002442 A002; 12/15/1990; $105,121; 12 mo.

The Effect of Regional Hydrologic and Hydraulic Parameters on Macrodispersion in Heterogeneous Aquifers
Serrano, Sergio; Kentucky Research Foundation, Lexington, KY 40506
BCS 9207870 A000; 09/01/1992; $61,977; 12 mo.

Co-Metabolic Inhibition Kinetics of Chlorinated Hydrocarbon Degradation by Methane and Propane Oxidizers
Strand, Stuart; Stensel, H. David; University of Washington, Seattle, WA 98195
BCS 8902772 A005; 07/01/1989; $9,981; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $4,990

Probe Techniques for Studying Mediated Reduction Reactions of Organic Pollutants: Research Initiation Award
Tratynek, Paul; Oregon Graduate Institute of Science & Technology, Beaverton, OR 97006-1999
BCS 9212059 A000; 09/01/1992; $48,980; 12 mo.

Effect of Ultrasonic Fields on Contaminants Adsorbed on Solids
Tumeo, Mark; University of Alaska-Fairbanks Campus, Fairbanks, AK 99775-0900
BCS 9119492 A000; 03/15/1992; $66,694; 15 mo.

Public Awareness Issues That Impact Engineering Design of Environmental Systems
Vernon-Gerstenfeld, Susan; Worcester Polytechnic Institute, Worcester, MA 01609
BCS 9123401 A000; 11/01/1991; $4,000; 12 mo.

Dissolution of Kinetics of NAPL Pools in Saturated Porous Media
Voudrias, Evangelos; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 9022205 A003; 03/15/1991; $76,770; 12 mo.

Electron Beam Irradiation of Aqueous Systems at Large Scale
Waite, Thomas; Kurucz, Charles; University of Miami, Coral Gables, FL
BCS 9108033 A001; 08/15/1991; $56,125; 0 mo.
Jointly Funded with SPECIAL PROGRAMS and CROSS-DIRECTORATE PROGRAMS $44,432
BCS 9108033 A002; 08/15/1991; $305,010; 12 mo.

Symposium on Applications of Isotopes and Radiation in Conservation of the Environment, March 9-13, 1992
Waite, Thomas; Individual Award, Washington, DC 20550
BCS 9208876 A000; 02/15/1992; $1,246; 8 mo.

Enhanced Bioremediation Using Genetically Engineered Microbes
Wood, Thomas; University of California-Irvine, Irvine, CA 92717
BCS 9210619 A000; 09/01/1992; $34,359; 12 mo.

Low Temperature Oxidation Catalysts
Wright, John; TDA Research Inc., Wheat Ridge, CO 80033
III 9160318 A000; 03/15/1992; $50,000; 6 mo.

Ocean Engineering Systems

United States-Argentina Workshops on Coastal Ocean Space Utilization: Engineering Research and Environmental Implications
Abel, Robert; New Jersey Marine Sciences Consortium, Pomona, NJ 08240
BCS 9022636 A001; 03/01/1991; $15,500; 0 mo.

Use of Imaging Spectrometry for Turbidity Analysis in Nearshore/Estuarine Waters
Bagheri, Sima; The Foundation at NJIT, Newark, NJ 07102
BCS 9210232 A000; 09/15/1992; $15,575; 12 mo.

Continued Studies of Marine Farm Engineering
Benson, John; Neushul, Michael; Harger, Bruce; Neushul Mariculture Inc., Goleta, CA 93117
BCS 9018522 A001; 05/01/1991; $99,544; 12 mo.

Applications for an Autonomous Underwater Vehicle - A Case Study of Issues of Complexity in Undergraduate Engineering Design
Chryssostomidis, Chryssostomos; Bellingham, James; Consi, Thomas; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9101004 A001; 09/01/1991; $34,647; 12 mo.

Engineering Research Equipment: Electronics to Develop Autonomous Underwater Vehicles
Chryssostomidis, Chryssostomos; Bellingham, James; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9212679 A000; 09/01/1992; $29,000; 15 mo.

Dynamics of a Pipe System for Hardrock Fracturing in Deep-Ocean Floor
Chung, Jin; Mustoe, Graham; Huttelmaier, Hans-Peter; Colorado School of Mines, Golden, CO 80401
BCS 9207967 A000; 09/01/1992; $57,501; 12 mo.

Active Harmonic Destalization of Coherent Vortex Flows
Dhanak, Manhar; Florida Atlantic University, Boca Raton, FL 33431
BCS 9211847 A000; 08/15/1992; $89,991; 36 mo.

A Waterborne and Environmentally Benign Antifouling Paint
Dixon, Brian; Cape Cod Research Inc., Buzzards Bay, MA 02532
III 9160964 A000; 01/15/1992; $50,000; 6 mo.

Annotated Maps for Autonomous Underwater Vehicles
Dunn, Stanley; Ganesan, Krishnamurthy; Florida Atlantic University, Boca Raton, FL 33431
BCS 9017990 A001; 09/15/1991; $89,025; 12 mo.

Workshop for Autonomous Underwater Vehicles Technology Development Through Competitive Scenarios
Dunn, Stanley; Steer, Barry; Smith, Samuel; Florida Atlantic University, Boca Raton, FL 33431
BCS 9208809 A000; 02/15/1992; $24,893; 12 mo.

Presidential Young Investigator Award
Ertekin, R. Cengiz; University of Hawaii-Manoa, Honolulu, HI 96822
BCS 8958346 A003; 07/15/1989; $62,500; 12 mo.

Multiple Autonomous Vehicle Imaging System (MAVIS)
Fox, Joel; Blidberg, D. Richard; University of Hawaii-Manoa, Honolulu, HI 96822
BCS 9142300 A001; 02/15/1991; $110,000; 12 mo.

CY 1992 Cooperative Agreement Summary of Proposed 1992 Activities
Giangerelli, Richard; The Minerals Management Service, Reston, VA 22091
BCS 9216160 A000; 07/01/1992; $85,000; 12 mo.
Jointly Funded with INSTRUMENTATION DEVELOPMENT $10,000

Computer Simulation and Control of Autonomous Underwater Walking Robots
Kanayama, Yutaka; McGhee, Robert; Naval Postgraduate School, Monterey, CA 93943
BCS 9109989 A000; 02/15/1992; $99,965; 12 mo.

Presidential Young Investigator Award
Kriebel, David; United States Naval Academy, Annapolis, MD 21402
BCS 9157284 A001; 09/15/1991; $25,000; 12 mo.

Experimental and Theoretical Studies of Wave-Current Systems
Liu, Philip; Cornell University - Endowed, Ithaca, NY 14853
BCS 8912579 A002; 02/01/1990; $81,508; 12 mo.

Development and Testing of a Wave-Driven Artificial Upwelling Device
Liu, Clark; University of Hawaii-Manoa, Honolulu, HI 96822
BCS 9111878 A000; 01/15/1992; $57,083; 12 mo.

Passive Optical Sensing for Automatic Stationkeeping of ROVs
Negahdaripour, Shahriar; University of Miami, Coral Gables, FL
BCS 9296018 A001; 08/15/1991; $67,166; 12 mo.

Model Based Teleoperation to Eliminate Feedback Delay
Paul, Richard; University of Pennsylvania, Philadelphia, PA 19104
BCS 8901352 A002; 11/15/1989; $125,758; 12 mo.

Techniques for the Collection and Utilization of Fish Culture Wastes and Fish Processing Wastes from a Marine Aquaculture Operation
Reid, Bart; Aquamar Production Research Corporation, Panama City, FL 32411-7099
III 9161464 A000; 05/01/1992; $50,000; 6 mo.

Assessment of Research and Development in Japan and Europe
Shelton, R. Duane; Loyola College in Maryland, Baltimore, MD 21210
ENG 9111333 A002; 08/01/1991; $448,750; 0 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $20,000

Creep Processes of Continental Slope and Rise Sediments
Silva, Armand; Sadd, Martin; Veyera, George; University of Rhode Island, Kingston, RI 02881
BCS 9101657 A000; 02/15/1992; $101,500; 12 mo.

Multi-Sensor Core Logging System
Silva, Armand; King, John; Veyera, George; University of Rhode Island, Kingston, RI 02881
BCS 9213114 A000; 09/01/1992; $40,597; 12 mo.

Integrated Ocean Resource Applications Workshop
Takahashi, Patrick; University of Hawaii-Manoa, Honolulu, HI 96822
BCS 9215048 A000; 06/01/1992; $20,000; 12 mo.
Jointly Funded with DEPT OF COMMERCE - NOAA $20,000

Travel to Attend the U.S.-Italy Workshop on Systems, Models and Feedback: With Applications to Underwater Robots
Tarn, Tzyh-Jong; Washington University, St. Louis, MO 63130
BCS 9215532 A000; 06/15/1992; $4,300; 6 mo.

Workshop on Surgical Robotics
Taylor, Russell; IBM Thomas J. Watson Research Center, Yorktown Heights, NY 10598
BCS 9222082 A000; 09/15/1992; $6,250; 12 mo.

Annotated Maps for Autonomous Underwater Vehicles
Thorpe, Charles; Carnegie-Mellon University, Pittsburgh, PA 15213
BCS 9120655 A001; 09/15/1991; $75,064; 12 mo.

Workshop on US/French Cooperative Research in Underwater Vehicles
Thorpe, Charles; Carnegie-Mellon University, Pittsburgh, PA 15213
BCS 9204062 A000; 01/15/1992; $42,043; 12 mo.

Presidential Young Investigator Award
Yuh, Junku; University of Hawaii-Manoa, Honolulu, HI 96822
BCS 9157896 A001; 09/15/1991; $62,500; 12 mo.

Autonomous Underwater Vehicle for Deep-Sea Borehole Reentry
Yun, David; Lin, Shu; University of Hawaii-Manoa, Honolulu, HI 96822
BCS 9240421 A000; 10/01/1992; $123,420; 12 mo.

Natural and Man-Made Hazard Mitigation Programs

A Physical Basis for Real-Time Debris Flow Warning Systems
Anderson, Scott; University of Hawaii-Manoa, Honolulu, HI 96822
BCS 9211927 A000; 07/15/1992; $60,579; 24 mo.

Safety and Performance Enhancement of Structures Through Structural Control
Ang, A. H-S.; University of California-Irvine, Irvine, CA 92717
BCS 9201812 A000; 07/01/1992; $66,147; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $28,074

The Second International Symposium on Uncertainty Modeling and Analysis ISUMA '93 (to be held April 25-28, 1993 in College Park, Maryland)
Ayyub, Bilal; University of Maryland-College Park, College Park, MD 20742
MSS 9116513 A000; 10/01/1992; $8,056; 12 mo.

International Travel Grant: 23rd International Conference on Coastal Engineering, Venice, Italy, October 4-9, 1992
Basco, David; Old Dominion University Research Foundation, Norfolk, VA 23508-0369
BCS 9222558 A000; 08/15/1992; $1,018; 12 mo.

Workshop on the Selection and Management of U.S. Geotechnical Experimentation Sites
Benoit, Jean; De Alba, Pedro; University of New Hampshire-Durham, Durham, NH 03824
MSS 9121387 A000; 10/15/1991; $34,478; 12 mo.
Jointly Funded with SPECIAL STUDIES AND ANALYSES and SITING AND GEOTECHNICAL SYSTEMS $17,500

Decision-Making, Modeling and Forecasting Hydrometeorologic Extremes Under Climate Change
Bogardi, Istvan; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
BCS 9016556 A001; 02/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

A Study of Extreme Wind Regionalization
Cheng, Edmond; Chiu, Arthur; University of Hawaii-Manoa, Honolulu, HI 96822
BCS 9122224 A000; 05/15/1992; $58,204; 12 mo.

The Economics of Natural Hazards: An Assessment of Research Needs and Opportunities
Cochrane, Harold; Colorado State University, Fort Collins, CO 80523
BCS 9215282 A000; 09/15/1992; $109,662; 16 mo.
Jointly Funded with FEMA $74,700

Chicago Flood of April 1992
Cording, Edward; Gabriel, Fernandez; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9216233 A000; 06/01/1992; $35,464; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $8,866

Estimation of Extreme Probability Distribution Tails: Application to Extreme Wind Speeds
Corotis, Ross; Karr, Alan; Simiu, Emil; Johns Hopkins University, Baltimore, MD 21218
BCS 9013116 A001; 02/15/1991; $44,537; 12 mo.
Jointly Funded with STRUCT SYSTS AND CONSTRCT PROCES $15,000
BCS 9013116 A002; 02/15/1991; $4,987; 0 mo.

Erosional Response to the Oakland Hills Fire and the Effectiveness of Mitigation Efforts
Dietrich, William; University of California-Berkeley, Berkeley, CA 94720
BCS 9207383 A000; 03/15/1992; $49,500; 12 mo.

Assessing the 1990-91 California Drought
Dracup, John; University of California-Los Angeles, Los Angeles, CA 90024
BCS 9114753 A001; 07/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

The East Bay Fire in the Oakland-Berkeley Hills: A Hydrologic and Water Management Assessment
Dracup, John; University of California-Los Angeles, Los Angeles, CA 90024
BCS 9206810 A000; 07/01/1992; $49,942; 12 mo.

ERCZ: Optimal Management Strategies for Coastal Aquifers Under Climate-Induced Changes
Dracup, John; University of California-Los Angeles, Los Angeles, CA 90024
BCS 9217968 A000; 09/15/1992; $76,984; 12 mo.

Decision-Making, Modeling and Forecasting Hydrometeorologic Extremes Under Climate Change
Duckstein, Lucien; Davis, Donald; University of Arizona, Tucson, AZ 85721
BCS 9016462 A001; 02/15/1991; $50,000; 0 mo.
Jointly Funded with DEPT OF ARMY-WATER RESOURCES $50,000

Workshop on Reliability Methods for Risk Mitigation in Geotechnical Engineering
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
MSS 9203139 A000; 04/15/1992; $10,000; 9 mo.

Organizational and Operating Cost for USUCGER
Edil, Tuncer; University of Wisconsin-Madison, Madison, WI 53706
MSS 9122195 A000; 01/15/1992; $15,000; 12 mo.
Jointly Funded with SPECIAL STUDIES AND ANALYSES and SITING AND GEOTECHNICAL SYSTEMS $7,500

Presidential Young Investigator Award - Soil Moisture Dynamics and Droughts
Entekhabi, Dara; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9296012 A001; 09/01/1991; $25,000; 12 mo.

Presidential Young Investigator Award - Estimation of Exceedance Probabilities of Extreme Storms
Foufoula-Georgiou, Efi; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 8957469 A005; 08/01/1989; $62,500; 12 mo.

Testing of Large Smart Structures Using Embedded Sensors
Fuhr, Peter; Huston, Dryver; Spillman, Jr., William; University of Vermont and State Agricultural College, Burlington, VT 05405
BCS 9024390 A001; 03/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
BCS 9024390 A002; 03/01/1991; $1,591; 0 mo.

Presidential Young Investigator Award
Georgakakos, Konstantine; University of Iowa, Iowa City, IA 52242
BCS 8657526 A008; 07/01/1987; $34,936; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $9,936
BCS 8657526 A009; 07/01/1987; $37,500; 0 mo.

The Use of Satellite Rainfall Estimates with Real-Time Flow Prediction Models for Large Catchments
Georgakakos, Konstantine; University of Iowa, Iowa City, IA 52242
BCS 9207965 A000; 08/15/1992; $39,716; 12 mo.

Active Control of Structures Using Neural Networks
Ghaboussi, Jamshid; Wen, Y.; Paul, Stanley; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9201437 A000; 06/15/1992; $46,439; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $25,000

Risk-Based Decisionmaking in Water Resources Management
Haimes, Yacov; Stakhiv, Eugene; United Engineering Trustees Inc., New York, NY 10017
BCS 9109320 A001; 09/15/1991; $10,000; 0 mo.
Jointly Funded with STRUCTURAL SYSTEMS $10,000

Structural Control for Earthquakes and Wind Storms Using Active Structural Members
Hanson, Robert; Filisko, Frank; McClamroch, Nathaniel; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9201787 A000; 07/15/1992; $103,448; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS and STRUCTURAL SYSTEMS $53,000

Hazard Proofing the Nation - A Strategy to Reduce Natural Disasters
Hays, Walter; Geological Survey, Reston, VA 22092
BCS 9215968 A000; 07/01/1992; $3,000; 12 mo.
Jointly Funded with EARTHQUAKE SYSTEMS INTEGRATION $1,000

Presidential Young Investigator Award
Hobbs, Benjamin; Case Western Reserve University, Cleveland, OH 44106
BCS 8552524 A011; 08/01/1986; $40,000; 0 mo.
Jointly Funded with DEPT OF ARMY-WATER RESOURCES $40,000

Measurement and Analysis of Full-Scale Wind Forces and Responses of the Houston Baytown Bridge
Jones, Nicholas; Scanlan, Robert; Johns Hopkins University, Baltimore, MD 21218
BCS 9114006 A000; 11/01/1991; $115,720; 12 mo.

Presidential Young Investigator Award: Dynamic Modeling of Wind-Induced Lateral-Torsional Motion of Structures
Kareem, Ahsan; University of Notre Dame, Notre Dame, IN 46556
BCS 9096274 A002; 09/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000

Models of Warning Systems for Natural Hazards
Krzysztofowicz, Roman; University of Virginia-Main Campus, Charlottesville, VA 22901
BCS 9016979 A002; 02/15/1991; $68,358; 12 mo.
BCS 9016979 A003; 02/15/1991; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000

Workshop on Hazardous Mass-Flow Phenomena to be held at Rolla, Missouri on February 27-28, 1992
Lentz, Rodney; Westphal, Jerome; University of Missouri-Rolla, Rolla, MO 65401
BCS 9121024 A000; 02/15/1992; $20,664; 12 mo.

Experimental and Theoretical Investigation of Bridge Motion in Turbulent Flow
Lin, Y.; Florida Atlantic University, Boca Raton, FL 33431
BCS 9015272 A002; 01/01/1991; $177,635; 24 mo.

Active Tuned Liquid Damper for Structural Control
Lou, Jack; Lutes, Loren; Texas A&M University Research Foundation, College Station, TX 77843
BCS 9202092 A000; 09/01/1992; $88,621; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS and STRUCTURAL SYSTEMS $29,082

Assessing the Progression and Fire Behavior of the October 20, 1991, Oakland Hills Fire
Martin, Robert; Williamson, Robert; University of California-Berkeley, Berkeley, CA 94720
BCS 9219120 A000; 03/15/1992; $49,163; 12 mo.

Studies of Integration and Implementation Issues in the Active Control of Lifeline Systems
Masri, Sami; University of Southern California, Los Angeles, CA 90089
BCS 9203994 A000; 07/01/1992; $94,466; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $57,233

CSU/TTU Cooperative Research Program in Wind Engineering
Mehta, Kishor; Texas Tech University, Lubbock, TX 79409
BCS 8821163 A005; 06/01/1989; $40,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $15,000
BCS 8821163 A006; 06/01/1989; $350,925; 12 mo.

ERCZ: Mitigation of Hurricane Damage to Constructed Facilities
Mehta, Kishor; Reed, Dorothy; English, Thomas; Texas Tech University, Lubbock, TX 79409
BCS 9218343 A000; 09/15/1992; $21,552; 12 mo.

Mechanics of Mud Flow and Land Subscience
Mei, Chiang; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9112748 A000; 12/01/1991; $62,064; 12 mo.

CSU/TTU Cooperative Research Program for Wind Engineering
Meroney, Robert; Colorado State University, Fort Collins, CO 80523
BCS 8821542 A004; 06/01/1989; $40,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $15,000
BCS 8821542 A005; 06/01/1989; $350,891; 12 mo.

Assessment of Research and Applications on Natural Hazards
Mileti, Dennis; Colorado State University, Fort Collins, CO 80523
BCS 9207146 A000; 03/01/1992; $58,812; 9 mo.

Analytical Model of Cable-Stayed Bridge Nonlinear Dynamics for Mitigation of Extreme Load Effects
Namini, Ahmad; University of Miami, Coral Gables, FL 33124
BCS 9110472 A001; 07/01/1991; $9,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $6,750

A New Method for Estimating the Exceedance Probability of Extreme Floods
Potter, Kenneth; University of Wisconsin-Madison, Madison, WI 53706
BCS 9104815 A001; 08/01/1991; $69,560; 12 mo.

U.S. Panel on Wind and Seismic Effects
Raufaste, Noel; National Institute of Standards and Technology, Gaithersburg, MD 20899
BCS 9201553 A000; 02/01/1992; $20,000; 12 mo.

ERCZ: Mitigation of Hurricane Damage to Constructed Facilities
Reed, Dorothy; University of Washington, Seattle, WA 98195
BCS 9219921 A000; 09/15/1992; $18,000; 12 mo.

Post-Eruptive Rain Lahars of Mount Pinatubo, Philippines
Rodolfo, Kelvin; University of Illinois at Chicago, Chicago, IL 60680
EAR 9205132 A000; 08/01/1992; $110,000; 24 mo.
Jointly Funded with GEOLOGY AND PALEONTOLOGY

Optimal Moisture Content Considerations for Dynamic Compaction
Rollins, Kyle; Brigham Young University, Provo, UT 84602
BCS 9116339 A000; 03/01/1992; $50,385; 12 mo.

Second International Conference on Snow Engineering; June 21-26, 1992; Santa Barbara, California
Sack, Ronald; University of Oklahoma-Norman Campus, Norman, OK 73019
MSS 9108089 A000; 01/15/1992; $21,000; 12 mo.

Regional Flood Hazard Analysis
Salas, Jose; Boes, Duane; Wohl, Ellen; Colorado State University, Fort Collins, CO 80523
BCS 9101741 A001; 06/15/1991; $121,777; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $60,888

Development of Adaptive Hybrid Control Techniques for Building Structures
Shing, Pui-Shum; Frangopol, Dan; Su, Renjeng; Mikulas, Martin; University of Colorado at Boulder, Boulder, CO 80309
BCS 9201962 A000; 06/15/1992; $66,539; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS and STRUCTURAL SYSTEMS $46,539

ERCZ: The Value of Information on Future Sea-Level Rise and Climatology for Land Use
Small, Mitchell; Carnegie-Mellon University, Pittsburgh, PA 15213
BCS 9218045 A000; 09/15/1992; $65,703; 12 mo.

A Distributed Physically Based Modeling Approach to Flash Flood Forecasting in Semi-Arid Regions
Sorooshian, Soroosh; University of Arizona, Tucson, AZ 85721
BCS 8920851 A002; 04/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Long-Term Stability of Natural Slopes
Stark, Timothy; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9196074 A001; 01/01/1991; $5,000; 3 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

The Use of Satellite Rainfall Estimates with Real-Time Flow Prediction Models for Large Catchments
Tsonis, Anastasios; University of Wisconsin-Milwaukee, Milwaukee, WI 53201
BCS 9207943 A000; 09/01/1992; $104,874; 12 mo.

Investigation of Thunderstorm Winds with Respect to Wind Load Design Criteria and the Safety of Structures
Twisdale, Lawrence; Applied Research Associates Inc.-Raleigh, Raleigh, NC 27615
III 9117048 A000; 07/15/1992; $224,935; 18 mo.

Investigation of Predictive Methods for Hurricane Winds in the United States
Twisdale, Lawrence; Applied Research Associates Inc.-Albuquerque, Albuquerque, NM 87110
III 9160135 A000; 01/15/1992; $49,998; 6 mo.

Response of Structural Glazing Systems to Dynamic Loads and Extreme Environments
Vallabhan, C.V. Girija; Tock, Richard; Texas Tech University, Lubbock, TX 79409
MSS 9007911 A001; 02/01/1991; $50,128; 12 mo.

A Clearinghouse on Natural Hazards Research and Applications
White, Gilbert; University of Colorado at Boulder, Boulder, CO 80309
BCS 9012839 A003; 09/01/1990; $68,691; 0 mo.

Natural Hazards Research and Applications Information Center
White, Gilbert; University of Colorado at Boulder, Boulder, CO 80309
BCS 9213479 A000; 10/01/1992; $527,184; 12 mo.
Jointly Funded with ARMY-NHRAIC $68,184

SGER: Galeras Volcano 1991 Eruption Studies
Williams, Stanley; Arizona State University, Tempe, AZ 85287
EAR 9202195 A000; 02/01/1992; $8,200; 12 mo.
Jointly Funded LATIN AMERICA, SDC $3,900

Mitigation of Damage to Structures Supported on Slab-on-Ground Foundations Constructed over Expansive Soils
Wray, Warren; Texas Tech University, Lubbock, TX 79409
BCS 9015850 A001; 01/01/1991; $80,709; 12 mo.

Research Participation in 7th International Conference on Expansive Soils
Wray, Warren; Texas Tech University, Lubbock, TX 79409
BCS 9209675 A000; 05/01/1992; $17,902; 12 mo.
Jointly Funded with GEOMECHAN, GEOTECH AND GEOENVIRN $3,500

Active and Passive Controls of Complex Structures with Uncertainties Under Wind Loads
Yang, T.; Purdue University Research Foundation, West Lafayette, IN 47907
BCS 9022714 A001; 04/01/1991; $68,000; 12 mo.

Active Control of Structure Instrumented with Optical Fiber Sensors Under Earthquake Loading
Yang, Jackson; Sirkis, James; Amini, Farshad; Qi, Gui-Zhong; University of Maryland-College Park, College Park, MD 20742
BCS 9202159 A000; 07/01/1992; $58,253; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $27,836

Improved Assessment of the Economic Impacts of Drought in Arid Regions
Young, Robert; Colorado State University, Fort Collins, CO 80523
BCS 9116599 A000; 04/15/1992; $63,384; 12 mo.

Special Programs

RUI: Ontogeny of Modulation of Dentate Granule Cell Excitability in the Freely Moving Rat
Bronzino, Joseph; Trinity College, Hartford, CT 06106
BCS 9010616 A002; 08/01/1990; $6,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $3,000

Microbiosensors to Evaluate Free Radical Activity in Tissue
Buerk, Donald; University of Pennsylvania, Philadelphia, PA 19104
BCS 9196021 A002; 09/01/1990; $5,000; 0 mo.

The Economics of Natural Hazards: An Assessment of Research Needs and Opportunities
Cochrane, Harold; Colorado State University, Fort Collins, CO 80523
BCS 9215282 A000; 09/15/1992; $109,662; 16 mo.
Jointly Funded with FEMA $74,700

Microstructural Modeling of the Bone Implant Interface
Cowin, Stephen; Sadegh, Ali; CUNY-City College, New York, NY 10031
BCS 9103236 A001; 08/01/1991; $8,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $8,000

Site-Response Studies for Purpose of Revising NEHRP Seismic Provisions
Crouse, C.; Dames & Moore, A Professional Limited Partnership Co., Los Angeles, CA 90017
BCS 9216637 A000; 09/01/1992; $30,000; 12 mo.
Jointly Funded with NUCLEAR REGULATORY COMMISSION $30,000

Optimized Overproduction by Genetically Modified Cells Using Selective Cell Separation Technology
Davis, Robert; Kompala, Dhinakar; Ramirez, W. Fred; Gold, Lawrence; Sclafani, Robert; University of Colorado at Boulder, Boulder, CO 80309
BCS 8912259 A006; 09/01/1989; $13,150; 0 mo.

NSF Young Investigator
Deodatis, George; Princeton University, Princeton, NJ 08544
BCS 9257900 A000; 08/15/1992; $25,000; 12 mo.

Decision-Making, Modeling and Forecasting Hydrometeorologic Extremes Under Climate Change
Duckstein, Lucien; Davis, Donald; University of Arizona, Tucson, AZ 85721
BCS 9016462 A001; 02/15/1991; $50,000; 0 mo.
Jointly Funded with DEPT OF ARMY-WATER RESOURCES $50,000

Board on Natural Disasters
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
BCS 9207384 A000; 09/01/1992; $30,000; 12 mo.
Jointly Funded with AGRICULTURE $10,000

Cooperative U.S.-Brazil Research Programs
Gaus, Michael; SUNY at Buffalo, Amherst, NY 14228
BCS 9122203 A000; 11/15/1991; $20,000; 12 mo.

Genetic Engineering for Product Using Non-Chromatographic Methods
Glatz, Charles; Ford, Clark; Honzatko, Richard; Iowa State University, Ames, IA 50011
BCS 9108583 A001; 09/01/1991; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $5,000

Presidential Young Investigator Award
Goochee, Charles; Stanford University, Stanford, CA 94305
BCS 8857712 A006; 01/01/1989; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $5,000

Presidential Young Investigator Award
Hobbs, Benjamin; Case Western Reserve University, Cleveland, OH 44106
BCS 8552524 A011; 08/01/1986; $40,000; 0 mo.
Jointly Funded with DEPT OF ARMY-WATER RESOURCES $40,000

Undergraduate Designs for Rehabilitation Engineering
Hyman, William; Miller, Gerald; Texas A&M University-Main Campus, College Station, TX 77843
BCS 8805377 A004; 06/01/1988; $16,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $8,000

Micro Electro Mechanical Systems for NSF/NASA/DOD Applications Workshop
Jacobsen, Stephen; Wood, J.; University of Utah, Salt Lake City, UT 84112
ECS 9106811 A000; 09/01/1992; $70,000; 12 mo.
Jointly Funded with ROBOTICS AND MACHINE INTELLIGE $7,500

Development of Bioerodible Polymer Matrices for Osteoblast Growth and Maturation
Laurencin, Cato; Massachusetts Institute of Technology, Cambridge, MA 02139
BCS 9011170 A003; 07/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $10,000

National Center for Earthquake Engineering Research - Phase II
Lee, George; Lee, George; Buckle, Ian; SUNY at Buffalo, Amherst, NY 14228
BCS 9025010 A000; 11/01/1991; $3,750,000; 12 mo.
BCS 9025010 A001; 11/01/1991; $1,250,000; 12 mo.
BCS 9025010 A002; 11/01/1991; $150,600; 12 mo.
Jointly Funded with NATL COMMUNICATIONS SYSTEM $150,600

A Silicon Based, Three Dimensional Microsystem for Stimulation of the Visual Cortex
Normann, Richard; University of Utah, Salt Lake City, UT 84112
BCS 9110767 A001; 08/15/1991; $5,000; 0 mo.
Jointly Funded with $3,750

Understanding Injury of Suspended Animal Cells in Mixed Bioreactors Due to Bubble Breakup
Papoutsakis, Eleftherios; Northwestern University, Evanston, IL 60208
BCS 9022472 A001; 07/01/1991; $5,000; 0 mo.
Jointly Funded with $3,750

Soil Profiling at the Geotechnical Experimentation Site of Treasure Island, CA
Poran, Chaim; University of North Carolina at Charlotte, Charlotte, NC 28223
BCS 9211431 A000; 06/15/1992; $8,797; 12 mo.
Jointly Funded with TRANSPORTATION-TREASURE ISLAND $7,797

Presidential Young Investigator Award
Shing, Pui-Shum; University of Colorado at Boulder, Boulder, CO 80309
BCS 8658100 A006; 07/15/1987; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS amd $5,000

Integrated Ocean Resource Applications Workshop
Takahashi, Patrick; University of Hawaii-Manoa, Honolulu, HI 96822
BCS 9215048 A000; 06/01/1992; $20,000; 12 mo.
Jointly Funded with DEPT OF COMMERCE - NOAA $20,000

Electron Beam Irradiation of Aqueous Systems at Large Scale
Waite, Thomas; Kurucz, Charles; University of Miami, Coral Gables, FL
BCS 9108033 A001; 08/15/1991; $56,125; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $44,432

Natural Hazards Research and Applications Information Center
White, Gilbert; University of Colorado at Boulder, Boulder, CO 80309
BCS 9213479 A000; 10/01/1992; $527,184; 12 mo.
Jointly Funded With NAT AND MAN-MADE HAZARD MITIGATI AND ARMY-NHRAIC $68,184

A Clearinghouse on Natural Hazards Research and Applications
White, Gilbert; University of Colorado at Boulder, Boulder, CO 80309
BCS 9012839 A003; 09/01/1990; $68,691; 0 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI and ARMY $48,691

Bioprocess Engineering: Research Priorities and Policy Options
Zaborsky, Oskar; National Academy of Sciences, Washington, DC 20418
BCS 9017115 A004; 09/01/1990; $25,000; 0 mo.
Jointly Funded with ENERGY-BIOFUELS PROGRAM PLAN $25,000

Marine Biotechnology: Research Opportunities and Policy Issues
Zaborsky, Oskar; National Academy of Sciences, Washington, DC 20418
IBN 9211798 A000; 05/01/1992; $90,000; 14 mo.
Jointly Funded with BIOTECHNOLOGY and BIOCHEMICAL AND BIOMASS ENG $10,000

Senior Design Projects to Aid the Handicapped
Zelano, John; The Foundation at NJIT, Newark, NJ 07102
BCS 8908923 A003; 09/01/1989; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $10,000

CHEMICAL AND THERMAL SYSTEMS

Chemical Reaction Processes Program

Kinetics and Catalysis

Carbonyl Coupling Reactions Probe Oxide Surfaces
Barteau, Mark; University of Delaware, Newark, DE 19716
CTS 9100404 A001; 04/01/1991; $95,000; 12 mo.

Engineering Research Equipment: Mossbauer Spectrometer with Magnetic Resolution for Catalysis/Coal Mineral Research
Bartholomew, Calvin; Hecker, William; Eatough, Delbert; Dubow, Joel; Harb, John; Brigham Young University, Provo, UT 84602
CTS 9212479 A000; 07/01/1992; $38,000; 12 mo.
Jointly Funded with COMBUSTION AND THERMAL PLASMAS $12,600

Active Sites for Heteroatom Removal
Benziger, Jay; Princeton University, Princeton, NJ 08544
CTS 8915121 A002; 01/01/1990; $72,000; 12 mo.

Surface and Inorganic Chemistry of Compound Semiconductor Materials
Cowley, Alan; Ekerdt, John; White, J.; Jones, Richard; University of Texas at Austin, Austin, TX 78712
CHE 9007166 A002; 09/01/1990; $132,000; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $44,000

Synthesis and Characterization of Model Oxides and Mixed Metal Oxides
Datye, Abhaya; University of New Mexico, Albuquerque, NM 87131
CTS 8912366 A002; 01/01/1990; $79,000; 12 mo.
Jointly Funded with CERAMICS $60,000

Engineering Research Equipment: TEM Holder for Ex-Situ Controlled Atmosphere Microscopy
Datye, Abhaya; University of New Mexico, Albuquerque, NM 87131
CTS 9212439 A000; 07/01/1992; $24,000; 18 mo.

NSF Young Investigator: Solid Base Catalysts and Quantum-Size Photocatalysts
Davis, Robert; University of Virginia-Main Campus, Charlottesville, VA 22901
CTS 9257306 A000; 09/15/1992; $25,000; 12 mo.

Chemical and Photochemical Factors Controlling the Photoefficiency of Photopromoted Solid-Catalyzed Oxidative Decomposition of Organic Vapors
Dong, Junchang; Project Sunrise Inc. (formerly Synlize Inc.), Newton, MA 02159
III 9161466 A000; 02/01/1992; $50,000; 6 mo.

Microcalorimetric Studies of Supported Platinum Catalysts for Light Paraffin Conversion Reactions
Dumesic, James; University of Wisconsin-Madison, Madison, WI 53706
CTS 9123197 A000; 02/01/1992; $100,000; 12 mo.

Chemical Sensors for CVD Processing
Ellis, Arthur; Keuch, Thomas; University of Wisconsin-Madison, Madison, WI 53706
CTS 9202699 A000; 09/01/1992; $162,000; 12 mo.
Jointly Funded with MATERIALS SYNTHESIS AND PROCESSN and SOLID-STATE AND MICROSTRUCTURE RES $108,000

Presidential Young Investigator Award: The Surface Chemistry of Gas-Solid Materials Processing
Engstrom, James; Cornell University - Endowed, Ithaca, NY 14853
CTS 9157892 A001; 07/01/1991; $62,500; 12 mo.

Determination of Acidity Functions of Liquid Acids by Carbon-13 Nuclear Magnetic Resonance and Development of Theoretically Justified Calibration of Solid Acidity
Farcasiu, Dan; University of Pittsburgh, Pittsburgh, PA 15260
CTS 9121454 A000; 06/01/1992; $73,000; 12 mo.
Jointly Funded with BIMOLECULAR PROCESSES $36,500

Presidential Young Investigator Award: Monte Carlo Simulation of Surface Kinetics
Fichthorn, Kristen; Pennsylvania State Univ.-University Park, University Park, PA 16801
CTS 9058013 A002; 09/01/1990; $64,276; 12 mo.

On-Site Electrochemical Peroxide Generator
Fraser, Mark; PSI Technology Company, Andover, MA 01810
III 9203023 A000; 09/01/1992; $166,027; 12 mo.

Improved Membranes for Electrosynthesis
Genders, J. David; Electrosynthesis Company Inc., Buffalo, NY 14227
III 9161086 A000; 01/15/1992; $50,000; 6 mo.

Novel Anodes for Pollution Control
Genders, J. David; Electrosynthesis Company Inc., Buffalo, NY 14227
III 9161087 A000; 01/15/1992; $50,000; 6 mo.

Tenth International Congress on Catalysis - Group Travel
Gonzalez, Richard; Tulane University, New Orleans, LA 70118
CTS 9115938 A000; 02/01/1992; $29,000; 12 mo.

1992 Gordon Research Conference on Catalysis
Goodman, D.; Gordon Research Conferences, Kingston, RI 02881
CTS 9210468 A000; 05/01/1992; $5,000; 6 mo.

Studies of Zeolite Acidity
Gorte, Raymond; White, David; University of Pennsylvania, Philadelphia, PA 19104
CTS 9101447 A001; 04/15/1991; $94,000; 12 mo.

Engineering Research Equipment: Atomic Absorption Spectrometer for Catalysis Research
Gorte, Raymond; Davies, Peter; University of Pennsylvania, Philadelphia, PA 19104
CTS 9211595 A000; 07/01/1992; $13,691; 12 mo.

The Study of Platinum Particle Genesis and Stabilization in L-Zeolite
Haller, Gary; Yale University, New Haven, CT 06520
CTS 9214151 A000; 09/01/1992; $137,156; 12 mo.

Fundamental Studies of Adsorption and Catalysis on Metal Surfaces by Scanning Tunneling Microscopy
Hamers, Robert; University of Wisconsin-Madison, Madison, WI 53706
DMR 9017288 A001; 05/01/1991; $88,400; 12 mo.

Assignment of Zeolitic Framework Vibrations Using High Pressure Methods
Hammack, William; Carnegie-Mellon University, Pittsburgh, PA 15213
CTS 9208885 A000; 07/01/1992; $90,000; 36 mo.

Immobilization of Homogeneous Catalysts: Supported Aqueous Phases, Ion Exchange Resins, and Membranes
Hanson, Brian; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
CTS 9101846 A001; 06/01/1991; $9,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750
CTS 9101846 A002; 06/01/1991; $76,000; 12 mo.

The Molecular Kinetics of the Organometallic Vapor-Phase Epitaxy of II-VI Materials
Hicks, Robert; University of California-Los Angeles, Los Angeles, CA 90024
CTS 9121811 A000; 09/15/1992; $70,000; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $35,000

Spectroscopic Studies of Partial Oxidation Catalysts During Their Genesis and Use
Hill, Charles; University of Wisconsin-Madison, Madison, WI 53706
CTS 8912635 A002; 01/01/1990; $80,000; 12 mo.

Preparation, Characterization and Catalytic Behavior of Alumina-Supported Platinum/Tin Reforming Catalysts and Related Model Systems
Hoflund, Gar; University of Florida, Gainesville, FL 32611
CTS 9122575 A000; 05/01/1992; $84,004; 12 mo.

Surface Analytical Equipment for Investigation of Surface Reaction of Organometallic Compounds
Jensen, Klavs; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9212984 A000; 06/15/1992; $44,937; 12 mo.

Model Supported Metal Catalysts
Klein, Michael; University of Delaware, Newark, DE 19716
CTS 9012910 A001; 11/01/1990; $95,000; 12 mo.

Sulfate-Promoted Titania and Zirconia Aerogels as Solid Superacids
Ko, Edmond; Carnegie-Mellon University, Pittsburgh, PA 15213
CTS 9200665 A000; 08/01/1992; $76,000; 12 mo.

Determination of Metal-Oxygen Bond Strength in Oxide Catalysts
Kung, Harold; Northwestern University, Evanston, IL 60208
CTS 9015221 A001; 02/01/1991; $64,000; 12 mo.
CTS 9015221 A002; 02/01/1991; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

Presidential Young Investigator: Surface Organometallic Chemistry in Catalysis and Microelectronics
Lamb, H. Henry; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
CTS 8958350 A003; 07/01/1989; $67,500; 12 mo.

Particulate Heterojunction Photocatalysts: Correlation of Charge Carrier Separation Distances and Dynamics with Catalytic Activity
Levy, Boris; Boston University, Boston, MA 02215
CTS 9208926 A000; 09/01/1992; $134,424; 12 mo.

Student Foreign Conference Travel: The 6th International Conference on Physics of Estuaries and Coastal Seas in Western Australia December 8-10, 1992
List, E. John; California Institute of Technology, Pasadena, CA 91125
CTS 9222402 A000; 12/01/1992; $4,980; 1 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $522

Presidential Young Investigator Award: Partial Oxidations in Zeolites and Filamentous Materials for Composites
Lund, Carl; SUNY at Buffalo, Buffalo, NY 14260
CTS 8857100 A004; 06/15/1988; $40,000; 12 mo.
CTS 8857100 A005; 06/15/1988; $44,392; 0 mo.

Kinetics and Mechanism of Selective Oxidation of Cyclic and Linear Alkenes on Metal Surfaces
Madix, Robert; Stanford University, Stanford, CA 94305
CTS 9005135 A002; 07/01/1990; $100,000; 12 mo.

Structure Sensitivity of the Hydrogenolysis of Simple Hydrocarbons on Platinum Single Crystals
Masel, Richard; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 8922282 A003; 03/01/1990; $94,000; 12 mo.

Presidential Young Investigator Award: Ceramic and Catalyst Materials - Synthesis Chemistry and Adsorption Properties
McCormick, Alon; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9058387 A002; 07/15/1990; $72,500; 12 mo.

In Situ Structural and Chemical Characterization for Sol-Gel Synthesis of Binary Glasses
Mullins, Michael; Cornilsen, Bahne; Michigan Technological University, Houghton, MI 49931
CTS 9106865 A001; 08/15/1991; $45,000; 12 mo.
Jointly Funded with CERAMICS $45,000

Scanning Tunneling Microscopic Studies on Model Molybdenum Sulfide Catalysts
Ng, K.Y. Simon; Wayne State University, Detroit, MI 48202
CTS 9207840 A000; 09/01/1992; $78,247; 12 mo.

Dynamic Structure of Graphite-Supported Iron-Iridium and Iron-Palladium Catalyst Particles
Phillips, Jonathan; Pennsylvania State Univ.-University Park, University Park, PA 16801
CTS 8915194 A002; 06/01/1990; $77,000; 12 mo.

High Temperature Calorimeter for the Study of Active Site Distribution on Carbon Catalyst Supports
Phillips, Jonathan; Pennsylvania State Univ.-University Park, University Park, PA 16801
CTS 9213036 A000; 08/01/1992; $30,000; 12 mo.

Metal Deposition from Supercritical Electrolytes
Prentice, Geoffrey; Johns Hopkins University, Baltimore, MD 21218
CTS 9113462 A000; 12/01/1991; $124,961; 24 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $37,488

Formation of Silicon Nitride
Ring, Morey; O'Neal, H.; San Diego State University Foundation, San Diego, CA 92182-1900
CHE 9202437 A000; 09/01/1992; $156,000; 18 mo.

Engineering Equipment and Research Grant: Fourier Transform Infrared Spectrometer Upgrade
Root, Thatcher; Cooper, Stuart; Hill, Charles; Dumesic, James; Bray, Kevin; University of Wisconsin-Madison, Madison, WI 53706
CTS 9212866 A000; 09/01/1992; $24,300; 12 mo.

Mixed Conducting Membranes for Nox Decomposition in Automobile Exhausts
Sammells, Anthony; Eltron Research Inc., Aurora, IL 60504
III 9200988 A000; 08/15/1992; $249,994; 24 mo.

The Design of Supported Metal Composite Oxides by Selective Metal-Support Exchange
Schwarz, James; Syracuse University, Syracuse, NY 13244-5300
CTS 8900514 A002; 09/01/1989; $8,000; 6 mo.

Electrochemical Processing and Synthesis of Light Emitting Porous Silicon Structures
Searson, Peter; Sieradzki, Karl; Johns Hopkins University, Baltimore, MD 21218
DMR 9202645 A000; 09/01/1992; $150,000; 12 mo.
Jointly Funded with SOLID-STATE AND MICROSTRUCTURE RES $50,000

Experimental Studies of Surface Diffusion on Semiconductor Materials
Seebauer, Edmund; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9121917 A000; 09/15/1992; $140,000; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $37,500

Electrochemical Processes Studied Ex-Situ with Ultrahigh Vacuum Surface Analysis
Stuve, Eric; University of Washington, Seattle, WA 98195
CTS 9103543 A001; 09/01/1991; $78,000; 12 mo.

Synthesis and Catalytic Properties of Vanadium-Phosphorus-Silicon Oxides
Sundaresan, Sankaran; Benziger, Jay; Princeton University, Princeton, NJ 08544
CTS 9100130 A000; 01/01/1992; $105,000; 36 mo.
CTS 9100130 A001; 01/01/1992; $10,000; 0 mo.

Anomalous Electrodeposition of Alloys
Talbot, Jan; University of California-San Diego, San Diego, CA 92093
CTS 9208596 A000; 09/01/1992; $124,761; 24 mo.

Fundamental Investigation of Molybdenum Nitride and Carbide Catalysts: Minority Research Initiation Award
Thompson, Levi; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 8918107 A003; 01/15/1990; $90,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $60,000

Presidential Young Investigator Award: Rational Design and Synthesis of Advanced Catalytic and Electronic Materials
Thompson, Levi; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9158527 A001; 07/01/1991; $100,000; 12 mo.

The Effect of Surface Functional Groups on the Dispersion, Chemical Properties, and Catalytic Behavior of Carbon-Supported Pd and Pt-Sn Catalysts Prepared from Metal Cluster
Vannice, M. Albert; Phillips, Jonathan; Geoffroy, Gregory; Pennsylvania State Univ.-University Park, University Park, PA 16801
CTS 9011275 A001; 02/01/1991; $107,000; 12 mo.
CTS 9011275 A002; 02/01/1991; $5,000; 0 mo.

Small Silver Particles: Characterization by Nuclear Magnetic Resonance, Conduction-Electron Spin Resonance, and Catalytic Behavior in Partial Oxidation Reactions
Vannice, M. Albert; Benesi, Alan; Pennsylvania State Univ.-University Park, University Park, PA 16801
CTS 9019612 A001; 09/01/1991; $5,000; 0 mo.

Presidential Young Investigator: Growth of II-VI Compound Semiconductors Using Metalakyl Precursors
Vohs, John; University of Pennsylvania, Philadelphia, PA 19104
CTS 8957056 A003; 07/01/1989; $62,500; 12 mo.

The Role of the Oxide Support in Supported Vanadium Oxide Catalyst
Wachs, Israel; Lehigh University, Bethlehem, PA 18015
CTS 9006258 A001; 11/15/1990; $87,380; 12 mo.

Sacrificial Anode Process for Organic Electrosynthesis
Weinberg, Norman; Genders, J. David; Electrosynthesis Company Inc., Buffalo, NY 14227
CTS 9208555 A000; 09/01/1992; $110,000; 12 mo.

Direct Methane Activation to Methanol Across Mixed Conducting Membranes
White, James; Eltron Research Inc., Aurora, IL 60504
III 9161277 A000; 01/15/1992; $49,996; 6 mo.

Electron Transfer Mechanisms in Concentrated Organic Redox Solutions
White, Henry; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9208760 A000; 09/01/1992; $84,000; 12 mo.

Novel Low Temperature Approaches to Epitaxial Silicon Overgrowth on Silicides
Yalisove, Steven; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DMR 9202176 A000; 09/01/1992; $135,000; 12 mo.

Mechanism of Carbon Oxidation Reactions
Yang, Ralph; SUNY at Buffalo, Buffalo, NY 14260
CTS 9120452 A000; 02/01/1992; $160,729; 36 mo.
Jointly Funded with COMBUSTION AND THERMAL PLASMAS $53,576

NSF Young Investigator: Structural Tailoring of Nanoscale Materials for Catalysis and Ceramics
Ying, Jackie; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9257223 A000; 09/01/1992; $25,000; 12 mo.

Process and Reaction Engineering

Accelerated Convergence and Structure Determination of the Backpropagation Neural Network
Achenie, Luke E.; University of Connecticut, Storrs, CT 06268
CTS 9211691 A000; 08/01/1992; $89,961; 12 mo.

Dynamics of Catalytic Reactions and Reactors
Aris, Rutherford; Schmidt, Lanny; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9000117 A002; 05/01/1990; $85,510; 12 mo.

Collision Cross Sections for Electron-Impact Dominated Processes in Etching Plasmas
Becker, Kurt; CUNY City College, New York, NY 10031
CTS 9017211 A001; 06/01/1991; $4,688; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and INTERFAC, TRANS, AND THERMODYN PRO $3,907
CTS 9017211 A002; 06/01/1991; $70,000; 12 mo.
Jointly Funded with SPECTROSCOPY and QUANT ELECTRON, PLASMA AND ELECTRO $30,000

NSF Young Investigator
Beckman, Eric; University of Pittsburgh, Pittsburgh, PA 15260
CTS 9258580 A000; 09/01/1992; $25,000; 12 mo.

The Evaluation of the NCSA Video Macintosh Concept for Interpretation of Chemical Process Information
Bishop, Kenneth; University of Kansas Center for Research Inc., Lawrence, KS 66044
CTS 9213691 A000; 08/01/1992; $19,710; 7 mo.

Cross Sections of Technologically Important Gases (Physics)
Bonham, Russell; Indiana University-Bloomington, Bloomington, IN 47405
PHY 8913096 A002; 12/15/1989; $100,000; 12 mo.

Modeling and Characterization of Chain Polymerization Reactions for Multifunctional Monomers
Bowman, Christopher; University of Colorado at Boulder, Boulder, CO 80309
CTS 9209899 A000; 06/15/1992; $100,000; 36 mo.

Commercial Production of 3’-Azido-2’,3’-Dideoxyuridine
Bruckmann, Edith; ChemLudens, Menlo Park, CA 94025
III 9102062 A000; 05/01/1992; $253,356; 21 mo.

Programmed Rate Chemical Vapor Deposition
Cale, Timothy; Raupp, Gregory; Arizona State University, Tempe, AZ 85287
CTS 8920426 A002; 03/01/1990; $84,253; 12 mo.

Analysis of a Novel Three-Phase Catalytic Reactor
Cerro, Ramon; Abraham, Martin; University of Tulsa, Tulsa, OK 74104
CTS 9022241 A001; 03/01/1991; $65,979; 12 mo.
CTS 9022241 A002; 03/01/1991; $10,000; 0 mo.

Nonlinear Dynamics and Control of Complex Patterns in Disturbed Chemical Systems
Chang, Hseuh-Chia; University of Notre Dame, Notre Dame, IN 46556
CTS 9112977 A000; 11/01/1991; $78,256; 12 mo.
CTS 9112977 A001; 11/01/1991; $2,640; 0 mo.

Olefin Polymerization from the Gas Phase
Conner, William; Laurence, Robert; University of Massachusetts-Amherst, Amherst, MA 01003
CTS 8921381 A002; 03/15/1990; $100,968; 12 mo.

Control of Nonstationary Systems Using Information Preserving Neural Networks
Cooper, Douglas; Palmieri, Francesco; University of Connecticut, Storrs, CT 06268
CTS 9008596 A001; 10/15/1990; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750
CTS 9008596 A002; 10/15/1990; $63,876; 12 mo.
Jointly Funded with NEUROENGINEERING $31,938

National Science Foundation Alan T. Waterman Award
Davis, Mark; California Institute of Technology, Pasadena, CA 91125
CTS 9021017 A002; 08/01/1990; $166,000; 12 mo.

New Tools for the Computer-Aided Design of Nonideal Distillation Systems
Doherty, Michael; University of Massachusetts-Amherst, Amherst, MA 01003
CTS 9113717 A000; 11/01/1991; $244,855; 36 mo.

Supercritical Spray Application of Paints and Coatings
Donohue, Marc; Johns Hopkins University, Baltimore, MD 21218
CTS 9216923 A000; 09/01/1992; $80,001; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $26,667

The Conceptual Design of Chemical Processes with Waste Minimization
Douglas, James; University of Massachusetts-Amherst, Amherst, MA 01003
CTS 9113049 A000; 12/15/1991; $85,374; 12 mo.

NSF Young Investigator
Doyle, F.; Purdue University Research Foundation, West Lafayette, IN 47907
CTS 9257059 A000; 09/01/1992; $25,000; 12 mo.

A Novel Approach to the Optimal Design of Hybrid Waste-Recovery Processes
El-Halwagi, Mahmoud; Auburn University, Auburn, AL 36849
CTS 9211039 A000; 06/01/1992; $89,739; 36 mo.

Studies on the Chemistry and Growth of Chemical Vapor Deposited Diamond and Related Films
Feigerle, Charles; Ramsey, John; Clausing, Robert; University of Tennessee-Knoxville, Knoxville, TN 37996-0140
CTS 9202575 A000; 09/01/1992; $300,000; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $75,000

Chemical Reaction Network Theory: The Dynamics of Reactors with Complex Chemistry
Feinberg, Martin; University of Rochester, Rochester, NY 14627
CTS 9008495 A001; 10/15/1990; $74,451; 12 mo.

Presidential Young Investigator Award
Fox, Rodney; Kansas State University, Manhattan, KS 66506
CTS 9158124 A001; 08/01/1991; $37,500; 0 mo.
CTS 9158124 A002; 08/01/1991; $4,875; 0 mo.
CTS 9158124 A003; 08/01/1991; $62,500; 12 mo.

Hot Hole Oxidations at Semiconductor Metal Electrodes
Frese, Karl; Interfacial Sciences Inc., Santa Clara, CA 95051
CTS 9014394 A001; 12/15/1990; $98,349; 12 mo.

Zeolite Membranes
Gavalas, George; Davis, Mark; California Institute of Technology, Pasadena, CA 91125
CTS 9114829 A000; 02/15/1992; $107,236; 12 mo.

Chemistry of Diamond Nucleation and Growth: Kinetic Measurement, Modeling, and Film Characterization via REMP/MS and Solid State NMR
Gleason, Karen; Sawin, Herbert; Howard, Jack; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9006705 A002; 08/15/1990; $77,500; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $77,500

Presidential Young Investigator Award
Graves, David; University of California-Berkeley, Berkeley, CA 94720
CTS 8957179 A005; 07/01/1989; $100,000; 12 mo.

Single Catalyst Pellet Performance in Exothermic Multiphase Reaction Systems
Harold, Michael; University of Massachusetts-Amherst, Amherst, MA 01003
CTS 8920650 A002; 04/01/1990; $68,408; 12 mo.

A Synergistic Approach to the Development of Improved and Alternative Methods for the Synthesis and Processing of Sulfolanes
High, Karen; Czekaj, Corinna; Oklahoma State University, Stillwater, OK 74078
CTS 9216834 A000; 09/01/1992; $100,000; 12 mo.

Engineering Design and Scale-Up of Combustion Synthesis Reactors
Hlavacek, Vladimir; Puszynski, Jan; Majorowski, Slawomir; SUNY at Buffalo, Buffalo, NY 14260
CTS 8915787 A002; 04/01/1990; $71,780; 12 mo.

Dynamic Behavior of Chemical Reactors
Hudson, John; University of Virginia-Main Campus, Charlottesville, VA 22901
CTS 9015853 A001; 04/01/1991; $77,669; 12 mo.

Experimental and Modelling Studies of Laser-Direct Write Processes
Jensen, Klavs; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9001872 A002; 08/01/1990; $116,421; 12 mo.

Experimental and Theoretical Studies of Chemical Vapor Deposition Processes
Jensen, Klavs; Massachusetts Institute of Technology, Cambridge, MA 02139
DMR 9023162 A001; 07/01/1991; $100,000; 12 mo.

Surface Analytical Equipment for Investigation of Surface Reaction of Organometallic Compounds
Jensen, Klavs; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9212984 A000; 06/15/1992; $44,937; 12 mo.
Jointly Funded with KINETICS AND CATALYSIS $22,468

Thin Film Solid Oxide Fuel Cell
Johnson, Brad; Analytic Power Corp, Boston, MA 02117-1189
III 9160890 A000; 01/15/1992; $49,817; 6 mo.

Recurrent Neural Networks and Micro-Genetic Algorithms for Estimation and Optimization: Application to Bioprocesses
Karim, M. Nazmul; Colorado State University, Fort Collins, CO 80523
BCS 9118955 A000; 03/15/1992; $96,968; 12 mo.
Jointly Funded with NEUROENGINEERING $30,000

Computer Simulation of Reactors for Chemical Vapor Deposition
Karki, Kailash; Innovative Research Inc., Minneapolis, MN 55414
III 9161060 A000; 01/01/1992; $50,000; 6 mo.

Presidential Young Investigator Award: Nonlinear Dynamics of Reaction and Transport Processes
Kevrekidis, Yannis; Princeton University, Princeton, NJ 08544
CTS 8957213 A003; 07/01/1989; $62,500; 12 mo.

System for Mass-Production of High Purity Silicon Nitride Powder
Kimura, Shoichi; Levenspiel, Octave; Oregon State University, Corvallis, OR 97331-5503
CTS 8921322 A002; 05/15/1990; $88,279; 12 mo.

Geometric Methods for Nonlinear Multivariable Process Control
Kravaris, Costas; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 8912836 A002; 11/01/1989; $80,508; 12 mo.

Modeling of Remote Plasma Assisted Materials Processing: Electron Transport and Selective Chemistry
Kushner, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9109326 A002; 09/01/1991; $72,532; 12 mo.

Intelligent, Robust Self-Tuning Control of Interactive Systems
Lee, Jay; Auburn University, Auburn, AL 36849
CTS 9209808 A000; 10/01/1992; $89,917; 12 mo.

Oil-Water Interfacial Synthesis as a Benign and Safer Alternative to Conventional Liquid-Phase Syntheses
Lim, Phooi; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
CTS 9217443 A000; 09/01/1992; $90,000; 12 mo.

Issues in Local Chemical Process Optimization
Lucia, Angelo; Clarkson University, Potsdam, NY 13676
CTS 8922316 A002; 06/01/1990; $42,452; 12 mo.

Chaotic Process Simulation
Lucia, Angelo; McLaughlin, John; Clarkson University, Potsdam, NY 13676
CTS 9007854 A001; 10/15/1990; $68,769; 12 mo.

Compatibilization of Polymer Blends
Macosko, Chris; Bates, Frank S.; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9203108 A000; 09/15/1992; $160,000; 12 mo.
Jointly Funded with POLYMERS $80,000

Presidential Young Investigator Award
Manousiouthakis, Vasilios; University of California-Los Angeles, Los Angeles, CA 90024
CTS 8857867 A004; 10/01/1988; $50,033; 12 mo.

Ion Induced Microprocessing
Melngailis, John; Sawin, Herbert; Thompson, Carl; Massachusetts Institute of Technology, Cambridge, MA 02139
DMR 9202633 A000; 10/01/1992; $300,000; 12 mo.

Polymer Science and Engineering: The Shifting Research Frontier
Metzger, Norman; National Academy of Sciences, Washington, DC 20418
DMR 9122680 A000; 04/15/1992; $75,000; 12 mo.
Jointly Funded with PROJECTS $8,000

Robust Controller Design for Systems with Constraints
Morari, Manfred; California Institute of Technology, Pasadena, CA 91125
CTS 9022766 A001; 03/15/1991; $112,056; 12 mo.

Intelligent Monitoring and Control of Chemical Processes Using Wavelet and FJ Transforms
Motard, Rodolphe; Joseph, Babu; Washington University, St. Louis, MO 63130
CTS 9108649 A001; 09/01/1991; $4,245; 0 mo.
CTS 9108649 A002; 09/01/1991; $92,069; 12 mo.

Presidential Young Investigator Award
Mullins, Charles; University of Texas at Austin, Austin, TX 78712
CTS 9157084 A001; 07/01/1991; $47,500; 12 mo.

Paired Electrochemical Synthesis of Organic Compounds
Murphy, Oliver; Lynntech Inc., Bryan, TX 77803
III 9161209 A000; 01/15/1992; $50,000; 6 mo.

Presidential Young Investigator Award
Packard, Andrew; University of California-Berkeley, Berkeley, CA 94720
CTS 9057420 A003; 10/01/1990; $62,500; 12 mo.

RUI: Investigation of a Reaction Scheme Using Ti203 and Ti02 in a Two-Step High Temperature Solar Process That Produces Zn from ZnO
Palumbo, Robert; Valparaiso University, Valparaiso, IN 46383
CTS 9023301 A001; 03/01/1991; $30,335; 12 mo.

Emulsion and Dispersion Polymerization
Poehlein, Gary; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
CTS 9023240 A002; 05/01/1991; $61,914; 12 mo.

Design of Chemical Processing Structures and Operating Procedures for Safety and Reliability
Powers, Gary; Carnegie-Mellon University, Pittsburgh, PA 15213
CTS 9114050 A000; 12/15/1991; $86,083; 12 mo.

Fundamental Studies of Polymerization Processes
Ray, W. Harmon; University of Wisconsin-Madison, Madison, WI 53706
CTS 9117313 A000; 11/15/1991; $117,800; 12 mo.

Pollution Prevention Through Precision Process Modelling, Design and Operation
Ray, W. Harmon; University of Wisconsin-Madison, Madison, WI 53706
CTS 9216726 A000; 09/01/1992; $300,000; 36 mo.

Model-Predictive Control of a Large-Scale System: A Case Study
Ricker, Neil; University of Washington, Seattle, WA 98195
CTS 9214983 A000; 09/01/1992; $63,682; 12 mo.

Presidential Young Investigator Award
Rumschitzki, David; CUNY City College, New York, NY 10031
CTS 8658147 A006; 10/01/1987; $2,119; 0 mo.

Oxidation in Supercritical Water: Reaction Pathways and Kinetics (REU Supplement)
Savage, Phillip; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9015738 A001; 12/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
CTS 9015738 A002; 12/15/1990; $66,766; 12 mo.

Kinetics, Structure, and Properties of Crosslinked Polymer Films Formed by Cationic Photopolymerization
Scranton, Alec; Berglund, Kris; Carter, Thomas; Michigan State University, East Lansing, MI 48824
CTS 9216939 A000; 09/01/1992; $98,383; 12 mo.

Design and Operation of High Performance Chemical Processes
Seider, Warren; University of Pennsylvania, Philadelphia, PA 19104
DDM 9114080 A001; 08/15/1991; $90,000; 12 mo.

Experiments on the Internal Structure of Latexes Using Small Angle Neutron Scattering
Sperling, Leslie; Klein, Andrew; Lehigh University, Bethlehem, PA 18015
CTS 8820705 A003; 03/15/1989; $4,869; 0 mo.

Transport Modelling of Packed-Tube Reactors
Stewart, Warren; University of Wisconsin-Madison, Madison, WI 53706
CTS 9120325 A000; 04/01/1992; $83,910; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $30,000

Synthesis and Analysis of Gas/Polymer Solutions for Ultra-Microcellular Plastics Production
Suh, Nam; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9114738 A000; 03/01/1992; $90,000; 12 mo.

Zeolitic Solid Acid Catalysts for the Alkylation of Isoparaffins with Olefins
Sundaresan, Sankaran; Wei, James; Princeton University, Princeton, NJ 08544
CTS 9216699 A000; 09/01/1992; $219,060; 12 mo.

Optimizing Control of Liquid-Liquid Extraction Columns
Tavlarides, Lawrence; Syracuse University, Syracuse, NY 13244-5300
CTS 9017138 A001; 02/15/1991; $39,859; 12 mo.

Presidential Young Investigator
Thompson, Brian; University of Kansas Center for Research Inc., Lawrence, KS 66044
CTS 9157796 A001; 07/15/1991; $25,000; 12 mo.

Presidential Young Investigator Award: Photophysical Emission Studies of Block Copolymers and Their Mixtures with Homopolymers
Torkelson, John; Northwestern University, Evanston, IL 60208
CTS 8657809 A005; 09/01/1987; $74,206; 12 mo.

Process Fault Diagnosis and Control Using Neural Networks
Venkatasubramanian, Venkat; Purdue University Research Foundation, West Lafayette, IN 47907
ECS 9013349 A002; 09/01/1990; $79,759; 12 mo.

Physics of Solid State Polymerization
Warner, Steven; Polk, Malcolm; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
CTS 9104585 A000; 03/15/1992; $50,000; 12 mo.
Jointly Funded with POLYMERS $25,000

Presidential Young Investigator Award
Westmoreland, Phillip; University of Massachusetts-Amherst, Amherst, MA 01003
CTS 9057406 A003; 07/01/1990; $62,500; 12 mo.

Electrochemical Utilization of Hydrogen Sulfide
Winnick, Jack; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
CTS 8915538 A002; 02/15/1990; $64,475; 12 mo.

Presidential Young Investigator Award: Robust Process Control
Zafiriou, Evanghelos; University of Maryland-College Park, College Park, MD 20742
CTS 9057292 A002; 10/01/1990; $62,500; 12 mo.

Solid-State Rechargeable Batteries Using Plasma Polymerization
Zurawsky, Walter; Polytechnic University, Brooklyn, NY 11201
CTS 9207525 A000; 09/15/1992; $112,345; 12 mo.

Fluid, Particulate, and Hydraulic Systems Program

Fluid Dynamics and Hydraulics

Mathematical Sciences: Nonlinear Coupling of Solitary Internal Waves with Small-Scale Disturbances
Akylas, Triantaphyllos; Massachusetts Institute of Technology, Cambridge, MA 02139
DMS 9202064 A000; 09/01/1992; $66,600; 12 mo.
Jointly Funded with PHYSICAL OCEANOGRAPHY $6,600

Boundary Layers over Moving Walls
Alving, Amy; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9110447 A001; 09/01/1991; $10,000; 0 mo.

An International Workshop on Recent Developments and Future Directions in Processing of Ceramics held During the Summer of 1992 in Las Vegas, Nevada
Ariman, Teoman; Ariman, Teoman; Fine Particle Society Engineering Society, Tulsa, OK 74104
CTS 9216190 A000; 08/15/1992; $17,750; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $2,500

Experimental and Computational Studies of Complex Viscoelastic Flows
Armstrong, Robert; Brown, Robert; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9202130 A000; 09/01/1992; $79,500; 12 mo.

Presidential Young Investigator Award
Aubry, Nadine; CUNY City College, New York, NY 10031
CTS 8957462 A003; 07/01/1989; $62,500; 12 mo.

A Novel Instrument to Study the Effects of Turbulence Structure on the Cavitation of Turbomachinery
Bachalo, William; Aerometrics Inc., Sunnyvale, CA 94086
III 9115759 A000; 08/15/1992; $233,132; 24 mo.

Mathematical Sciences: Presidential Young Investigator Award
Bayly, Bruce; University of Arizona, Tucson, AZ 85721
DMS 9057124 A001; 08/01/1990; $27,719; 12 mo.

Order and Disorder in Dynamical Systems: Sand Flow and Superfluid Helium Mixtures
Behringer, Robert; Duke University, Durham, NC 27708
DMR 9017236 A001; 02/15/1991; $90,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $18,000

Modelling and Simulation of Viscoelastic Flow Instabilities
Beris, Antony; University of Delaware, Newark, DE 19716
CTS 9114508 A000; 03/01/1992; $90,989; 12 mo.

Oscillating Flow in Stirling Microrefrigerators: Empirical Verification of Analytical Results
Bowman, Lyn; Sunpower Inc., Athens, OH 45701
III 9160269 A000; 01/01/1992; $49,959; 6 mo.

Research Initiation Award: A Study of Roughness-Induced Bypass Transition
Breuer, Kenneth; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9210436 A000; 07/01/1992; $100,000; 36 mo.

Contaminant Transport Processes Between Water and Sediment Beds in Rivers
Brooks, Norman; Morgan, James; Koh, Robert; California Institute of Technology, Pasadena, CA 91125
BCS 9105965 A001; 07/15/1991; $120,622; 12 mo.

Engineering Research Equipment: Mechanical Spectrometer
Burghardt, Wesley; Torkelson, John; Northwestern University, Evanston, IL 60208
CTS 9212271 A000; 08/01/1992; $101,310; 12 mo.

Molecular Orientation in Complex Flows of Liquid Crystalline Polymers
Burghardt, Wesley; Northwestern University, Evanston, IL 60208
CTS 9213421 A000; 09/01/1992; $124,209; 24 mo.

Time-Dependent Motion of Multimode Fluids
Caswell, Bruce; Brown University, Providence, RI 02912
CTS 8921668 A002; 07/01/1990; $111,623; 12 mo.

Presidential Young Investigator Award
Chen, KangPing; Arizona State University, Tempe, AZ 85287
CTS 9157063 A001; 08/01/1991; $62,500; 12 mo.

Engineering Research Equipment: Rheometrics Dynamic Analyzer for the Characterization of Polymeric Fluids and Networks
Cohen, Claude; Hieber, Cornelius; Koch, Donald; Wang, Kuo; Cornell University - Endowed, Ithaca, NY 14853
CTS 9212549 A000; 07/01/1992; $82,000; 12 mo.

Gas Dynamic Involving Negative and Mixed Nonlinearity
Cramer, Mark; Watson, Layne; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
CTS 8913198 A002; 01/15/1990; $89,211; 12 mo.
CTS 8913198 A003; 01/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Hydrodynamic Interaction and Coalescence of Two Fluid Drops
Davis, Robert; University of Colorado at Boulder, Boulder, CO 80309
CTS 8914236 A002; 12/01/1989; $77,017; 12 mo.
CTS 8914236 A003; 12/01/1989; $6,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,875

NSF Young Investigator
Diplas, Panayiotis; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
CTS 9257335 A000; 08/01/1992; $25,000; 12 mo.

Presidential Young Investigator Award
Drela, Mark; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 8657990 A006; 07/01/1987; $37,500; 0 mo.

Travel Grants: U.S. National Committee for Theoretical and Applied Mechanics, to be held in Haifa, Israel, August 22-28, 1992
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
CTS 9206382 A000; 03/01/1992; $20,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC and MATERIALS PROCESSING AND MANUFCT $6,666

The Interaction Between Turbulence and Dispersed Particles in Fully Developed Channel Flow
Eaton, John; Stanford University, Stanford, CA 94305
CTS 9005998 A003; 06/01/1990; $95,960; 12 mo.

Presidential Young Investigator Award: Computational Fluid Dynamics and Aerothermodynamics
Eberhardt, David; University of Washington, Seattle, WA 98195
CTS 8657152 A006; 07/01/1987; $37,500; 0 mo.

Small Grant for Exploratory Research: Audio-Post-Processing for Shear Layer Calculation
Eberhardt, David; University of Washington, Seattle, WA 98195
CTS 9215487 A000; 06/01/1992; $18,086; 3 mo.

Flow and Sediment Transport in Ice-Covered Alluvial Channels (Jointly Submitted with Hungary's Research Center for Water Resources)
Ettema, Robert; Holly, Forrest; Patel, Virendra; Kennedy, John; University of Iowa, Iowa City, IA 52242
CTS 9002697 A003; 06/01/1990; $106,617; 12 mo.

Fluidization 1992: The Seventh Engineering Foundation Conference
Fan, Liang-Shih; United Engineering Trustees Inc., New York, NY 10017
CTS 9122369 A000; 04/01/1992; $25,500; 4 mo.

Presidential Young Investigator Award: Turbulent Thermal Convection in Rotating and Stratefied Fluids
Fernando, Harindra; Arizona State University, Tempe, AZ 85287
CTS 8657378 A009; 07/01/1987; $52,584; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

An Assessment of U.S.-German Exchange Programs in Mechanical Engineering Workshop to be held March 1992 in New Orleans, Louisiana
Fletcher, Leroy; Texas A&M University Research Foundation, College Station, TX 77843
CTS 9211694 A000; 03/15/1992; $44,687; 12 mo.

Dynamics of Multicomponent Polymer Liquids
Fuller, Gerald; Stanford University, Stanford, CA 94305
DMR 9120360 A000; 04/01/1992; $91,100; 12 mo.
DMR 9120360 A001; 04/01/1992; $18,000; 0 mo.

Computational Investigations of Pulmonary Airway Clearance
Gaver, Donald; Tulane University, New Orleans, LA 70118
BCS 9209558 A000; 08/15/1992; $99,973; 36 mo.

Dynamics of Jet Mixing Layer
George, William; SUNY at Buffalo, Buffalo, NY 14260
CTS 9102863 A000; 01/01/1992; $99,459; 12 mo.

IUTAM Symposium Entitled: Eddy Structure Identification in Free Turbulent Shear Flows (Poitiers, France) October 12-14, 1992
Glauser, Mark; Clarkson University, Potsdam, NY 13676
CTS 9213607 A000; 05/01/1992; $7,450; 12 mo.

Film Flow Instabilities and Spatiotemporal Dynamics
Gollub, Jerry; Haverford College, Haverford, PA 19041
CTS 9115005 A000; 02/15/1992; $109,453; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,200

Industry-University Cooperative Research: Flow of Polymers in Complex Geometries
Graessley, William; Princeton University, Princeton, NJ 08544
CTS 9114536 A000; 02/01/1992; $102,342; 12 mo.

Minority Research Initiation Awards: Non-Invasive Kinetic Studies of Film Decontamination from the Inner Surfaces of Tubes
Grant, Christine; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
CTS 9115327 A000; 01/15/1992; $120,953; 36 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $90,715

Mathematical Sciences: Flow and Separation in a Centrifugal Spectrometer
Greenspan, Harvey; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9207284 A000; 08/15/1992; $117,870; 12 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $40,000

Interfacial Fluid Dynamics of the Lung
Grotberg, James; Northwestern University, Evanston, IL 60208
CTS 9013083 A001; 08/01/1991; $4,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,000
CTS 9013083 A002; 08/01/1991; $98,260; 12 mo.
Jointly Funded with BIOMEDICAL ENGINEERING $15,000

Presidential Young Investigator Award
Hall, Kenneth; Duke University, Durham, NC 27708
CTS 9157908 A001; 07/15/1991; $62,500; 12 mo.

Wall Turbulence
Hanratty, Thomas; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9200936 A000; 09/15/1992; $95,581; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $19,116

Use of Direct Numerical Simulation and Lagrangian Methods in Turbulent Transport
Hanratty, Thomas; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9209877 A000; 09/01/1992; $87,000; 12 mo.

Small Grants for Exploratory Research: Separation of Binary Mixture
Hussain, Fazle; University of Houston, Houston, TX 77204
CTS 9122746 A000; 12/15/1991; $50,000; 12 mo.

Compressible Vortex Dynamics and Turbulence: Reconnection, Core Dynamics, and Fine-Scale Organization
Hussain, Fazle; University of Houston, Houston, TX 77204
CTS 9214818 A000; 08/15/1992; $100,750; 12 mo.

Presidential Young Investigator Award
Jacobs, Jeffrey; University of Arizona, Tucson, AZ 85721
CTS 9057039 A002; 07/01/1990; $30,000; 12 mo.

International Travel Grant: To Attend the 2nd International Symposium on Engineering Turbulence Modelling and Measurements, May 31-June 2, 1993, Florence, Italy
Johnston, James; Stanford University, Stanford, CA 94305
CTS 9223705 A000; 04/01/1993; $6,852; 6 mo.

Fluid Dynamics of Two Miscible Liquids with Slow Diffusion and Gradient Stresses
Joseph, Daniel; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9020666 A001; 04/01/1991; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750
CTS 9020666 A002; 04/01/1991; $87,571; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $15,000

Studies of Two-Phase Flows of Solids and Liquids
Joseph, Daniel; Lundgren, Thomas; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9213979 A000; 09/15/1992; $261,400; 12 mo.

Numerical Computation of Drag Reduction in Turbulent Flow over Rough Walls
Karniadakis, George; Orszag, Steven; Princeton University, Princeton, NJ 08544
CTS 8914422 A003; 01/01/1990; $117,512; 12 mo.
Jointly Funded with COMPUTATIONAL ENGINEERING $15,000

The Effect of Nonplanar Oscillations upon the Onset of Rayleigh-Benard Convection and Other Fluid Instabilities
Kelly, Robert; University of California-Los Angeles, Los Angeles, CA 90024
CTS 9123553 A000; 07/15/1992; $179,368; 24 mo.
Jointly Funded with THERMAL TRANSPORT AND PROCESSING $89,684

Role of Extensional Stresses on the Interfacial Stability of Multiphase Flow Processes
Khomami, Bamin; Washington University, St. Louis, MO 63130
CTS 8914354 A004; 01/01/1990; $87,672; 12 mo.
CTS 8914354 A005; 01/01/1990; $4,245; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,183

An Experimental Study of Non-Linear Water Waves
Khosropour, Roset; Union College, Schenectady, NY 12308
CTS 9210150 A000; 09/01/1992; $18,000; 3 mo.

Space-Time Evolution of Near-Wall Velocity Gradients That Generate Organized Streamwise Vorticity
Klewicki, Joseph; University of Utah, Salt Lake City, UT 84112
CTS 9120076 A000; 03/15/1992; $105,855; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,608

Presidential Young Investigator Award: Flow of Materials with Microstructure
Koch, Donald; Cornell University - Endowed, Ithaca, NY 14853
CTS 8857565 A004; 07/01/1988; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
CTS 8857565 A005; 07/01/1988; $62,500; 12 mo.

Presidential Young Investigator Award: Mechanics of Thin Film Processing-Spin Coating
Lawrence, Christopher; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 8857040 A005; 08/01/1988; $25,000; 12 mo.

Experimental and Theoretical Studies of Concentrated Polymer Solutions in Strong Flows
Neal, L. Gary; Pearson, Dale; University of California-Santa Barbara, Santa Barbara, CA 93106
DMR 9114280 A000; 01/15/1992; $129,500; 12 mo.

Presidential Young Investigator Award
Lele, Sanjiva; Stanford University, Stanford, CA 94305
CTS 9158142 A001; 07/15/1991; $62,500; 12 mo.

Evolution and Viscous Decay of Dipolar Vortex Couples in Two Dimensional Fluid Mechanics
Lichter, Seth; Bernoff, Andrew; Northwestern University, Evanston, IL 60208
CTS 9206828 A000; 08/15/1992; $82,823; 12 mo.

International Travel Grant: International Collaborative Program on Atomization
Lin, Sung; Clarkson University, Potsdam, NY 13676
CTS 9215446 A000; 10/01/1992; $7,800; 12 mo.

Student Foreign Conference Travel: The 6th International Conference on Physics of Estuaries and Coastal Seas in Western Australia December 8-10, 1992
List, E. John; California Institute of Technology, Pasadena, CA 91125
CTS 9222402 A000; 12/01/1992; $4,980; 1 mo.
Jointly Funded with KINETICS AND CATALYSIS and PARTICULATE AND MULTIPHASE PROC $685

Research Initiation Award: Velocity Measurements in a Simulated Microbust
Longmire, Ellen; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9209948 A000; 07/15/1992; $100,000; 36 mo.

Research Initiation Award: Active Excitement of Three-Dimensional Layers
Loth, Eric; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9010594 A001; 07/01/1990; $8,000; 4 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $6,000

Presidential Faculty Fellow
Lowe, Mary; Loyola College in Maryland, Baltimore, MD 21210
CTS 9253633 A000; 09/01/1992; $100,000; 12 mo.

Engineering Research Equipment: A One-Component Laser Doppler Velocimeter System for Turbulent Particulate Flows in Hydraulics
Lyn, Dennis; Purdue University Research Foundation, West Lafayette, IN 47907
CTS 9212048 A000; 10/01/1992; $50,558; 12 mo.

The Pressure Profile in Cone-and-Plate Flows of Liquid Crystal Polymers
Magda, Jules; University of Utah, Salt Lake City, UT 84112
CTS 9022734 A001; 03/15/1991; $20,000; 0 mo.
Jointly Funded with SOLID MECHANICS $20,000

Research Initiation Award: Investigation of Viscoelastic Flow Instabilities by Digital Particle Image Velocimetry
McKinley, Gareth; Harvard University, Cambridge, MA 02138
CTS 9209779 A000; 07/01/1992; $100,000; 36 mo.

Nonlinear Water Wave Dynamics and Dispersion in Periodic Flows or Porous Media
Mei, Chiang; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9115689 A000; 03/15/1992; $57,334; 12 mo.
CTS 9115689 A001; 03/15/1992; $10,000; 0 mo.

Presidential Young Investigator Award: New Directions in Computational Fluid Dynamics
Meiburg, Eckart; University of Southern California, Los Angeles, CA 90089
CTS 9196004 A003; 08/01/1990; $62,500; 12 mo.

Subgrid Scale Modeling in Turbulent Flows: An Empirical Study
Meneveau, Charles; Johns Hopkins University, Baltimore, MD 21218
CTS 9113048 A001; 09/01/1991; $98,799; 12 mo.

Research Engineering Equipment: Dual Camera System for the Measurement of Unsteady Flow Phenomena
Miles, Richard; Princeton University, Princeton, NJ 08544
CTS 9212715 A000; 07/01/1992; $63,417; 12 mo.

Presidential Young Investigator Award: Mixing Processes in Surface-Water Flows
Monismith, Stephen; Stanford University, Stanford, CA 94305
CTS 8958314 A005; 08/15/1989; $25,000; 12 mo.

Engineering Research Equipment: High-Performance Graphics Workstation
Mountziaris, Triantafillos; Kofke, David; Tsamopoulos, John; Nitsche, Johannes; SUNY at Buffalo, Buffalo, NY 14260
CTS 9212682 A000; 07/01/1992; $54,000; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $16,200

Materials Synthesis and Processing: A Novel Technique of Net-Form Materials Synthesis
Orme, Melissa; Muntz, E.; Langdon, Terence; University of Southern California, Los Angeles, CA 90089
DDM 9204201 A000; 10/01/1992; $313,399; 24 mo.
Jointly Funded with METALLURGY $25,001

Small Grants for Exploratory Research: The Use of Wavelets in Computational Fluid Dynamics
Paolucci, Samuel; Sen, Mihir; University of Notre Dame, Notre Dame, IN 46556
CTS 9201152 A000; 04/15/1992; $49,298; 12 mo.

Compressible Shear-Layer Mixing Experiments
Papamoschou, Dimitri; University of California-Irvine, Irvine, CA 92717
CTS 9114220 A001; 10/01/1991; $23,235; 0 mo.
CTS 9114220 A002; 10/01/1991; $49,160; 12 mo.

Fluvial Morphology Resulting from Nonlinear Interactions of Water and Sediment
Parker, Gary; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9207882 A000; 08/15/1992; $93,098; 12 mo.

Energetics of Jet and Plume Turbulence in Stratified Fluids
Roberts, Philip; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
CTS 8915537 A004; 12/15/1989; $75,296; 12 mo.

Enhancement and Destabilization of Flow Structure by Forced Excitation of Globally Unstable Flow Systems
Rockwell, Donald; Lehigh University, Bethlehem, PA 18015
CTS 8922095 A002; 07/01/1990; $5,000; 0 mo.
CTS 8922095 A003; 07/01/1990; $95,930; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

Creation and Dynamics of Multiple Orientational Defects in Liquid-Crystal Polymers and Their Influence on Flow Behavior
Ryskin, Gregory; Northwestern University, Evanston, IL 60208
CTS 9119858 A000; 03/15/1992; $99,865; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $30,000

Presidential Young Investigator Award: Problems in Modern Materials Processing
Shaqfeh, Eric Stefan; Stanford University, Stanford, CA 94305
CTS 9057284 A003; 07/01/1990; $37,500; 0 mo.
CTS 9057284 A004; 07/01/1990; $62,500; 12 mo.

Management, Analysis and Representation of Large Scientific Databases
Sirovich, Lawrence; Bisshopp, Frederic; Vitter, Jeffrey; Everson, Richard; Brown University, Providence, RI 02912
IRI 9116451 A000; 03/01/1992; $151,435; 12 mo.
Jointly Funded with DATABASES, SOFTWARE DEV AND COMP $55,717

Controlled Microdrop Melt Deposition Processes: Prospects and Scaling Laws
Sonin, Ain; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9122123 A000; 09/01/1992; $45,000; 12 mo.

Small Grants for Exploratory Research: Skin-Friction Drag in the Turbulent Boundary Layer
Sreenivasan, K.; Yale University, New Haven, CT 06520
CTS 9215203 A000; 06/15/1992; $49,846; 9 mo.

Planar-Flow Melt-Spinning of Molten Meltals: Fluid Mechanics, Heat-Transfer and Solidification
Steen, Paul; Cornell University - Endowed, Ithaca, NY 14853
CTS 9024461 A001; 08/15/1991; $92,594; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $35,000

Presidential Young Investigator Award
Stone, Howard; Harvard University, Cambridge, MA 02138
CTS 8957043 A004; 07/01/1989; $33,179; 12 mo.

The Influence of Local and Global Instability on the Development of Countercurrent Mixing Layers
Strykowski, Paul; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9116532 A000; 03/15/1992; $155,036; 36 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,025

Studies of Breaking Wave Dynamics
Svendsen, Ib; Kirby, James; Huq, Pablo; University of Delaware, Newark, DE 19716
OCE 9203277 A000; 07/01/1992; $114,980; 12 mo.

Presidential Young Investigator Award
Tezduyar, Tayfun; University of Minnesota-St. Paul, Minneapolis, MN 55455
CTS 8796352 A007; 09/01/1987; $37,500; 0 mo.

Wave Propagation, Flow and Phase Changes in Liquid-Vapor Systems
Thompson, Philip; Hirsa, Amir; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
CTS 9119468 A000; 09/01/1992; $107,000; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $35,670

Numerical Studies of Multi-Fluid Systems
Tryggvason, Gretar; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9013214 A001; 05/01/1991; $74,544; 12 mo.

Inertial Effects in High-Velocity Boundary and Interior Layers in Liquid Metal MHD Flows
Walker, John; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9120448 A000; 05/01/1992; $68,644; 12 mo.

Small Grants for Exploratory Research: An Investigation of Small Scales of Turbulence in a Boundary Layer at High Reynolds Numbers
Wallace, James; Balint, Jean-Louis; Ong, Lawrence; University of Maryland-College Park, College Park, MD 20742
CTS 9217505 A000; 06/15/1992; $35,228; 2 mo.

Presidential Young Investigator Award
Wark, Candace; Illinois Institute of Technology, Chicago, IL 60616
CTS 9058081 A002; 06/15/1990; $25,000; 12 mo.

Presidential Young Investigator Award: Experimental Investigation of Wakes and Shear Flows
Williams, Katherine; University of California-Santa Barbara, Santa Barbara, CA 93106
CTS 9057469 A002; 07/15/1990; $25,000; 12 mo.

Rheology and Optical Properties of Thermotropic Liquid Crystalline Polymers
Winter, H. Henning; Stein, Richard; University of Massachusetts-Amherst, Amherst, MA 01003
DMR 9101323 A001; 08/01/1991; $60,000; 12 mo.

Particulate and Multiphase Processes

Engineering Research Equipment: Flume for Multiphase Flow
Ackermann, Norbert; Shen, Hung Tao; Shen, Hayley; Yapa, Poojitha; Clarkson University, Potsdam, NY 13676
CTS 9212119 A000; 07/01/1992; $73,063; 12 mo.

Transport Processes in Two-Phase Macroscopically Homogeneous Systems
Acrivos, Andreas; Mauri, Roberto; CUNY City College, New York, NY 10031
CTS 9012937 A001; 12/01/1990; $80,000; 12 mo.

NSF Young Investigator
Aidun, Cyrus; Institute of Paper Science and Technology, Atlanta, GA 30318
CTS 9258667 A000; 09/01/1992; $25,000; 12 mo.

Synthesis of Nanometer Diameter Particles and Measurement of Particle-Particle and Particle Substrate Interactions
Andres, R.; Reifenberger, R.; Talbot, Julian; Purdue University Research Foundation, West Lafayette, IN 47907
ECS 9117691 A000; 05/15/1992; $338,010; 36 mo.

An International Workshop on Recent Developments and Future Directions in Processing of Ceramics held During the Summer of 1992 in Las Vegas, Nevada
Ariman, Teoman; Ariman, Teoman; Fine Particle Society Engineering Society, Tulsa, OK 74104
CTS 9216190 A000; 08/15/1992; $17,750; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO and FLUID DYNAMICS AND HYDRAULICS $5,000

Investigation of Particle-Turbulence Interactions near Boundaries by Direct Numerical Simulation
Banerjee, Sanjoy; Hetsroni, Gad; University of California-Santa Barbara, Santa Barbara, CA 93106
CTS 9123297 A000; 03/15/1992; $82,400; 12 mo.

Order and Disorder in Dynamical Systems: Sand Flow and Superfluid Helium Mixtures
Behringer, Robert; Duke University, Durham, NC 27708
DMR 9017236 A001; 02/15/1991; $90,000; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $27,000

Nanocrystalline Materials Prepared by Spark Erosion
Berkowitz, Ami; Meyers, Marc; Maple, M. Brian; University of California-San Diego, San Diego, CA 92093
ECS 9119005 A001; 10/01/1991; $151,607; 12 mo.

Dynamics of Microstructured Fluids
Brady, John; California Institute of Technology, Pasadena, CA 91125
CTS 9020646 A001; 03/01/1991; $75,000; 12 mo.

High Volume Production of Ultrafine Particles
Brock, James; Becker, Michael; Keto, John; University of Texas at Austin, Austin, TX 78712
ECS 9119043 A000; 05/15/1992; $338,000; 36 mo.

Determine the Controlling Resistances in Filter Cakes
Chase, George; University of Akron, Akron, OH 44325
CTS 9213646 A000; 06/01/1992; $16,947; 7 mo.

Presidential Young Investigator Award
Clark, Nigel; West Virginia University, Morgantown, WV 26506
CTS 8957146 A003; 08/15/1989; $62,500; 12 mo.

Synthesis and Physical Properties of Nano-Clusters
Crowe, Clayton; Hamilton, C. Howard; Hirth, John; Hoagland, Richard; Chung, Jacob; Washington State University, Pullman, WA 99164-3140
CTS 8912430 A004; 06/15/1990; $75,000; 12 mo.
Jointly Funded with METALLURGY $75,000

Microparticle Chemical Reactions and Chemical Spectroscopy
Davis, E.; University of Washington, Seattle, WA 98195
CTS 9120334 A000; 04/15/1992; $75,040; 12 mo.

Supercritical Spray Application of Paints and Coatings
Donohue, Marc; Johns Hopkins University, Baltimore, MD 21218
CTS 9216923 A000; 09/01/1992; $80,001; 12 mo.

Correlation Transfer: A New Technique for Characterizing Dense Liquid/Particle Suspensions
Dougherty, R.; Ackerson, Bruce; Oklahoma State University, Stillwater, OK 74078
CTS 9117288 A000; 04/15/1992; $80,000; 12 mo.

Travel Grants: U.S. National Committee for Theoretical and Applied Mechanics, to be held in Haifa, Israel, August 22-28, 1992
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
CTS 9206382 A000; 03/01/1992; $20,000; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $3,333

Equipment Related to the Study of Interaction Between Homogeneous Turbulence and Solid Particles
Elghobashi, S.; LaRue, John; University of California-Irvine, Irvine, CA 92717
CTS 9208350 A000; 07/01/1992; $70,000; 12 mo.

Fluidization 1992: The Seventh Engineering Foundation Conference
Fan, Liang-Shih; United Engineering Trustees Inc., New York, NY 10017
CTS 9122369 A000; 04/01/1992; $25,500; 4 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $5,000

Accomplishment-Based Project Renewal - Study of Gas-Liquid-Solid Fluidization
Fan, Liang-Shih; Ohio State University Research Foundation, Columbus, OH 43210
CTS 9200793 A000; 06/15/1992; $100,000; 12 mo.

Particle Sizing Using Particle Image Velocimetry
Farrell, Patrick; University of Wisconsin-Madison, Madison, WI 53706
CTS 9106568 A001; 09/01/1991; $60,000; 12 mo.

An Assessment of U.S.-German Exchange Programs in Mechanical Engineering Workshop to be held March 1992 in New Orleans, Louisiana
Fletcher, Leroy; Texas A&M University Research Foundation, College Station, TX 77843
CTS 9211694 A000; 03/15/1992; $44,687; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $5,000

Lagrangian Description of Bedload Transport by Salutating Particles: Theory and Experiments
Garcia, Marcelo; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9210211 A000; 06/01/1992; $100,000; 36 mo.

Hydrodynamics of Fluidization
Gidaspow, Dimitri; Illinois Institute of Technology, Chicago, IL 60616
CTS 9015987 A001; 02/01/1991; $60,000; 12 mo.

Plasma Synthesis of Ceramics: Studies in Particle Nucleation and Growth
Girshick, Steven; McMurry, Peter; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9006237 A002; 07/01/1990; $45,548; 0 mo.
CTS 9006237 A003; 07/01/1990; $69,571; 12 mo.
Jointly Funded with COMBUSTION AND THERMAL PLASMAS $23,190

Request for Fiber Optic Probes and Digital Signal Analyzer/Processor to Upgrade Existing LDV System
Hamed, Awatef; Tabakoff, Widen; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 9213014 A000; 07/01/1992; $70,000; 12 mo.

Use of Direct Numerical Simulation and Lagrangian Methods in Turbulent Transport
Hanratty, Thomas; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9209877 A000; 09/01/1992; $87,000; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $27,000

Controlled Production of Ultrafine Particles Using Microemulsion and Ceramic Synthesis Technologies
Hatton, T. Alan; Cima, Michael; Bawendi, Moungi; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9118907 A001; 09/01/1991; $199,670; 12 mo.

Investigation of Nanoparticle Formation Using a Plasma Expansion Process
Heberlein, Joachim; McMurry, Peter; Girshick, Steven; Martins, Jose' L.; University of Minnesota Institute of Technology, Minneapolis, MN 55455
ECS 9118100 A001; 10/01/1991; $200,000; 12 mo.
Jointly Funded with COMBUSTION AND THERMAL PLASMAS $15,000

Homogeneous Nucleation Investigation
Heist, Richard; University of Rochester, Rochester, NY 14627
CTS 8919847 A002; 01/15/1990; $70,200; 12 mo.

Full-Field Three-Dimensional Particle Velocimetry and Sizing in an ARC-Spray Coating System
Hofeldt, David; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9210664 A000; 06/01/1992; $99,304; 36 mo.

The Mechanics of Fluidized Suspensions
Jackson, Roy; Princeton University, Princeton, NJ 08544
CTS 9207469 A000; 09/01/1992; $85,000; 12 mo.

Studies of Two-Phase Flows of Solids and Liquids
Joseph, Daniel; Lundgren, Thomas; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9213979 A000; 09/15/1992; $261,400; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $79,900

The Nucleation of Supersaturated Vapors
Katz, Joseph; Johns Hopkins University, Baltimore, MD 21218
CTS 9202057 A000; 07/15/1992; $70,000; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $35,000

NSF DOE Workshop on Flow of Particulates and Fluids to be held September 17-18, 1992
Kilmer, Katherine; Department of Commerce, Washington, DC 20230
CTS 9221047 A000; 09/15/1992; $5,000; 6 mo.

Transport Processes in Spray Drying
King, C. Judson; University of California-Berkeley, Berkeley, CA 94720
CTS 8822989 A002; 05/01/1989; $67,929; 12 mo.

Expert System Analysis for Monitoring and Diagnosis of Gas-Solid Transport Systems
Klinzing, George; University of Pittsburgh, Pittsburgh, PA 15260
CTS 8914026 A003; 07/01/1990; $75,000; 12 mo.

Presidential Young Investigator Award
Kodas, Toivo; University of New Mexico, Albuquerque, NM 87131
CTS 9058538 A003; 07/15/1990; $62,500; 12 mo.

Particles in rf Plasma Processing Discharges: Generation, Transport and Plasma Dynamics
Kushner, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9113215 A002; 08/15/1991; $73,105; 12 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $24,368

Ultrasonic Measurements in Concentrated Suspensions
Kytomaa, Harri; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9107449 A001; 09/01/1991; $12,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $9,000
CTS 9107449 A002; 09/01/1991; $53,540; 12 mo.

Student Foreign Conference Travel: The 6th International Conference on Physics of Estuaries and Coastal Seas in Western Australia December 8-10, 1992
List, E. John; California Institute of Technology, Pasadena, CA 91125
CTS 9222402 A000; 12/01/1992; $4,980; 1 mo.
Jointly Funded with KINETICS AND CATALYSIS $163

Attendance of U.S. Scholars at International Freight Pipeline Symposium, July of 1992
Liu, Henry; University of Missouri-Columbia, Columbia, MO 65211
CTS 9206753 A000; 02/15/1992; $12,500; 6 mo.

Measurements of Thermophoretic Forces on Single Particles
Loyalka, Sudarshan; Tompson, Robert; University of Missouri-Columbia, Columbia, MO 65211
CTS 9122108 A000; 05/01/1992; $71,570; 12 mo.

Chemical Reactions at Solid/Solution Interfaces and in Aerosols
Matijevic, Egon; Clarkson University, Potsdam, NY 13676
CHE 9108420 A001; 08/01/1991; $27,600; 0 mo.

Synthesis of Composite Particles by Liquid Aerosol Thermolysis
Messing, Gary; Santoro, Robert; Pennsylvania State Univ.-University Park, University Park, PA 16801
CTS 9202418 A000; 09/01/1992; $98,690; 12 mo.
Jointly Funded with CERAMICS $49,345

Engineering Foundation Conference on Dispersion and Aggregation: Fundamentals and Applications, March 15-20, 1992, Palm Coast, FL
Moudgil, Brij; United Engineering Trustees Inc., New York, NY 10017
CTS 9200614 A000; 02/01/1992; $8,000; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $4,000

Ultrapurification of Superconducting Powders
Moudgil, Brij; University of Florida, Gainesville, FL 32611
CTS 9222854 A000; 10/01/1992; $50,000; 12 mo.

Experimental and Theoretical Training Toward a Career in Colloid and Interface Science
Ofoli, Robert; Michigan State University, East Lansing, MI 48824
CTS 9213655 A000; 08/01/1992; $60,000; 12 mo.

Purification of Monoclonal Antibodies by Ion-Exchange Displacement Chromatography
Pinto, Neville; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 9207631 A000; 09/01/1992; $140,231; 24 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $138,305

Gas Phase Manufacture of Particulates in Aerosol Reactors
Pratsinis, Sotiris; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 8908197 A001; 10/01/1989; $5,000; 0 mo.

Presidential Young Investigator Award: Aerosol Processes
Pratsinis, Sotiris; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 8957042 A003; 07/15/1989; $62,500; 12 mo.

Hindered Diffusion of Colloidal Particles Very Near to a Wall
Prieve, Dennis; Carnegie-Mellon University, Pittsburgh, PA 15213
CTS 9003874 A003; 09/01/1990; $90,000; 12 mo.

Effect of Brownian Motion on the Interaction of Polymer-Coated Microspheres
Prieve, Dennis; Carnegie-Mellon University, Pittsburgh, PA 15213
CTS 9204061 A000; 09/01/1992; $80,000; 12 mo.

Microscopic and Macroscopic Modelling of Multi-Phase Flows
Prosperetti, Andrea; Johns Hopkins University, Baltimore, MD 21218
CTS 8918144 A002; 01/01/1990; $77,000; 12 mo.

Presidential Young Investigator Award: Particle Size Distribution Modelling and Control
Rawlings, James; University of Texas at Austin, Austin, TX 78712
CTS 8957123 A003; 08/15/1989; $62,500; 12 mo.

Physical and Chemical Behavior of Small Particles
Ray, Asit; Kentucky Research Foundation, Lexington, KY 40506
CTS 8912282 A004; 08/15/1989; $75,000; 0 mo.
Jointly Funded with ARMY-RES ON SNGL PART DYNAMICS $75,000

Foam Rheology
Reinelt, Douglas; Southern Methodist University, Dallas, TX 75275
CTS 9113907 A000; 12/01/1991; $93,406; 36 mo.

Inorganic Suspensions Using Well-Defined Copolymeric Stabilizers
Riffle, Judy; Davis, Richey; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
DMR 9005148 A002; 08/01/1990; $45,000; 12 mo.

Structure and Rheology of Concentrated Dispersions: Statistical Mechanical Theory and Light Scattering Measurements
Russel, William; Princeton University, Princeton, NJ 08544
CTS 9021349 A001; 07/01/1991; $90,000; 12 mo.

Transport Processes in Dense Multiphase Systems
Sangani, Ashok; Syracuse University, Syracuse, NY 13244-5300
CTS 9118675 A000; 06/01/1992; $60,000; 12 mo.

Synthesis of Ultrafine Particles of Nanosize Reinforced Composites
Sastry, Shankar; Kelton, Kenneth; Axelbaum, Richard; Buhro, William; Washington University, St. Louis, MO 63130
ECS 9119006 A001; 10/01/1991; $200,000; 12 mo.
Jointly Funded with COMBUSTION AND THERMAL PLASMAS $15,000

A Study on the Dynamics of Fibrous Aerosols in Filtration
Shaw, David; Patel, Sushil; SUNY at Buffalo, Buffalo, NY 14260
CTS 9015565 A001; 02/01/1991; $65,000; 12 mo.

Nanophase Composite Materials for Magnetic Refrigeration
Shaw, David; SUNY at Buffalo, Buffalo, NY 14260
CTS 9204084 A000; 09/01/1992; $270,000; 36 mo.

Presidential Young Investigator Award
Sinclair, Jennifer; Carnegie-Mellon Institute of Technology, Pittsburgh, PA 15213
CTS 9157185 A001; 08/01/1991; $62,500; 12 mo.

Stability of Colloidal Dispersions in Non-Aqueous Media
Somasundaran, Ponisseril; Columbia University, New York, NY 10027
CTS 9011991 A001; 02/01/1991; $70,000; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $20,000

Unsteady Motion in Pipe Flow of Gas-Solid Suspensions and Modeling
Soo, Shao; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9014914 A003; 09/01/1990; $9,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $6,750
CTS 9014914 A004; 09/01/1990; $80,000; 12 mo.

Light Scattering Studies of Fractal Soot Aggregates in Flames
Sorensen, Christopher; Kansas State University, Manhattan, KS 66506
CTS 9024668 A001; 07/15/1991; $25,000; 12 mo.
Jointly Funded with NIST $25,000

RUI: Twin-Fluid Atomization of Slurry Jet
Tsai, Shirley; California State University-Long Beach Foundation, Long Beach, CA 90815
CTS 9120807 A000; 04/15/1909; $180,000; 36 mo.

Presidential Young Investigator Award: Large Particle Fluidization
Turton, Richard; West Virginia University, Morgantown, WV 26506
CTS 8657548 A007; 07/01/1987; $18,955; 0 mo.

Presidential Young Investigator Award
Wagner, Norman; University of Delaware, Newark, DE 19716
CTS 9158164 A001; 08/01/1991; $62,500; 12 mo.

Production of Submicron Spherical Ceramic Particles
Withers, James; Materials and Electrochemical Research Corporation, Tucson, AZ 85706
III 9161394 A000; 01/01/1992; $50,000; 6 mo.

Workshop on Particulate Two-Phase Flow Visualization
Yang, Wen-Jei; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9022019 A002; 12/01/1990; $6,771; 0 mo.

Presidential Young Investigator Award: Colloidal Interfacial Phenomena
Zukoski, Charles; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 8657749 A005; 07/01/1987; $37,500; 0 mo.

Investigations of Shear Thickening in Dense Suspensions
Zukoski, Charles; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9200121 A000; 07/15/1992; $80,000; 12 mo.

Interfacial, Transport, and Separation Processes Program

Interfacial, Transport, and Thermodynamic Properties

Thermodynamic Properties of Ternary Nonelectrolyte Solutions
Acree, William; University of North Texas, Denton, TX 76203
CTS 8922485 A002; 04/01/1990; $58,550; 12 mo.

Transport Processes in Two-Phase Macroscopically Homogeneous Systems
Acrivos, Andreas; Mauri, Roberto; CUNY-City College, New York, NY 10031
CTS 9012937 A001; 12/01/1990; $80,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $12,000

Presidential Young Investigator Award: Characterization of Multicomponent Mixtures
Allen, David; University of California-Los Angeles, Los Angeles, CA 90024
CTS 8657280 A007; 07/01/1987; $37,500; 0 mo.

Presidential Young Investigator Award: Membrane Science
Anderson, Kimberly; Kentucky Research Foundation, Lexington, KY 40506
CTS 9157856 A001; 07/01/1991; $56,200; 12 mo.

An International Workshop on Recent Developments and Future Directions in Processing of Ceramics held During the Summer of 1992 in Las Vegas, Nevada
Ariman, Teoman; Ariman, Teoman; Fine Particle Society Engineering Society, Tulsa, OK 74104
CTS 9216190 A000; 08/15/1992; $17,750; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $5,000

Collision Cross Sections for Electron-Impact Dominated Processes in Etching Plasmas
Becker, Kurt; CUNY-City College, New York, NY 10031
CTS 9017211 A001; 06/01/1991; $4,688; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,907
CTS 9017211 A002; 06/01/1991; $70,000; 12 mo.
Jointly Funded with SPECTROSCOPY and QUANT ELECTRON, PLASMA AND ELECTRO $30,000

Highly CO2-Soluble Surfactants for Supercritical Fluid Reaction, Separation and Impregnation Process
Beckman, Eric; Enick, Robert; University of Pittsburgh, Pittsburgh, PA 15260
CTS 9123665 A000; 09/01/1992; $78,584; 12 mo.

Presidential Young Investigator Award: Mechanistic Studies of Colloidal Interactions
Bike, Stacy; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9058078 A002; 08/15/1990; $72,500; 3 mo.

Presidential Young Investigator Award: Statistical Thermodynamics of Complex and Supermolecular Fluids
Blankschtein, Daniel; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 8957143 A003; 07/15/1989; $62,500; 12 mo.

REU Supplement: Characterization of Polymer Interphases Using Surface-Enhanced Raman Scattering
Boerio, F. James; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 8823071 A003; 12/01/1989; $72,463; 12 mo.
CTS 8823071 A004; 12/01/1989; $9,860; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,395

Cryogenic Stage and Controlled Environment Vitrification System
Bose, Arijit; University of Rhode Island, Kingston, RI 02881
CTS 9212817 A000; 09/01/1992; $33,600; 12 mo.

Presidential Young Investigator Award
Brennecke, Joan; University of Notre Dame, Notre Dame, IN 46556
CTS 9157087 A001; 08/01/1991; $62,500; 12 mo.

The Removal of Flux Residues from Printed Wiring Assemblies
Carbonell, Ruben; Grant, Christine; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
CTS 9216850 A000; 09/01/1992; $77,456; 12 mo.

Molecular Separations Using Mobile Phases in Their Near-Critical Retrograde Regions
Chimowitz, Eldred; University of Rochester, Rochester, NY 14627
CTS 8908828 A002; 10/15/1989; $83,837; 12 mo.

Industry/University Collaboration: Molecular Theory of Transport Properties and Non-Newtonian Rheology
Cummings, Peter; University of Virginia-Main Campus, Charlottesville, VA 22901
CTS 9101326 A001; 08/01/1991; $75,000; 12 mo.

Effect of Low Temperature Processing on Polysilicon Thin Film Transistors Characteristics
Czubatyj, Wolodymyr; Energy Conversion Devices Inc., Troy, MI 48084
III 9022287 A000; 07/01/1992; $250,000; 24 mo.

Experimental and Theoretical Studies of Polymer Solution Thermodynamics
Danner, Ronald; Pennsylvania State Univ.-University Park, University Park, PA 16801
CTS 9015427 A001; 06/15/1991; $87,500; 12 mo.
Jointly Funded with WESTERN EUROPE, OTHER $5,000

Industry/University Cooperative Research: Microspherical Polymer Matrix Formation by Rapid Expansion of Supercritical Solutions (RESS) and Mathematical Modelling of RESS
Debenedetti, Pablo; Prud'Homme, Robert; Princeton University, Princeton, NJ 08544
CTS 9000614 A002; 09/01/1990; $88,000; 12 mo.

Industry/Academic Cooperative Research: A Fundamental Study of Non-Fickian Transport in Polymers
Durning, Christopher; Columbia University, New York, NY 10027
CTS 8919665 A001; 10/01/1990; $59,663; 12 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $29,831

12th IUPAC Conference on Chemical Therodynamics, to be held August 16-21, 1992, in Snowbird, Utah
Eatough, Delbert; Woolley, Earl; Brigham Young University, Provo, UT 84602
CTS 9205882 A000; 02/01/1992; $5,000; 12 mo.
Jointly Funded with STATISTICAL AND SIMULATIONS $2,000

Magnetic Resonance Imaging Facilities Upgrade
Edwards, Carl; Watson, Albert; Flumerfelt, Raymond; Barrufet, Maria; Poston, Steven; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
CTS 9213348 A000; 09/01/1992; $65,000; 12 mo.

Gelation Crystallization of Polymers from Supercritical Solution as a Route Toward Useful Materials
Ehrlich, Paul; Stein, Richard; Winter, H. Henning; University of Massachusetts-Amherst, Amherst, MA 01003
CTS 9202541 A000; 09/01/1992; $147,722; 12 mo.

Research Initiation Awards: Screening vs. Hydrogen Bonding in Chain Molecules
Elliott, Richard; University of Akron, Akron, OH 44325
CTS 9110285 A001; 08/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
CTS 9110285 A002; 08/01/1991; $30,116; 12 mo.

Simulation of Errors in Various Thermophysical Experiments from Which Virial Coefficients Are Extracted
Eubank, Philip; Gammon, Bruce; Texas A&M University Research Foundation, College Station, TX 77843
CTS 9021129 A001; 06/15/1991; $78,429; 12 mo.

An Assessment of U.S.-German Exchange Programs in Mechanical Engineering Workshop to be held March 1992 in New Orleans, Louisiana
Fletcher, Leroy; Texas A&M University Research Foundation, College Station, TX 77843
CTS 9211694 A000; 03/15/1992; $44,687; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $5,000

Transport of Water by Surfactant Spreading in Unsaturated Porous Media
Fort, Tomlinson; Vanderbilt University, Nashville, TN 37240
CTS 9213478 A000; 09/15/1992; $54,849; 12 mo.

Research Initiation Awards: Characterization of Interdiffusion Between Layers of Langmuir-Blodgett Multilayers
Foster, Mark; University of Akron, Akron, OH 44325
CTS 9110110 A001; 07/01/1991; $28,963; 12 mo.

NSF Young Investigator
Freeman, Benny; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
CTS 9257911 A000; 08/15/1992; $25,000; 12 mo.

In Situ Examination of Adsorption by Reflectance Spectroscopy
Freiser, Henry; Sperline, Roger; University of Arizona, Tucson, AZ 85721
CTS 9207861 A000; 09/01/1992; $80,000; 12 mo.

Engineering Research Equipment: Acquisition of an X-Ray Photoelectron Spectroscopy Research Instrument
Gardner, Steven; Pittman, Charles; Mississippi State University, Mississippi State, MS 39762
CTS 9212295 A000; 09/01/1992; $75,000; 12 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $9,000

Undergraduate Materials Education Initiative: An Innovative Undergraduate Materials Curriculum
Gaskell, David; Peppas, Nikolaos; Caruthers, James; Bowman, Keith; Trumble, Kevin; Purdue University, West Lafayette, IN 47907
DMR 9218126 A000; 10/01/1992; $350,000; 36 mo.
Jointly Funded with SOLID-STATE CHEMISTRY and POLYMERS $175,000

Presidential Young Investigator Award: Modification of Protein Structure near Charged Surfaces
Gleason, Karen; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9057119 A002; 07/01/1990; $62,500; 12 mo.

A Hydrodynamically Controlled Interface for Phase Transfer Catalysis and Related Processes
Goddard, Joe; University of California-San Diego, San Diego, CA 92093
CTS 9296008 A001; 08/31/1991; $74,170; 12 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $15,000

Reaction Kinetics of Intermetallic Hydrides
Goudy, Andrew; West Chester University of Pennsylvania, West Chester, PA 19383
CHE 9020765 A001; 06/15/1991; $36,000; 12 mo.

Industry-University Cooperative Research: Flow of Polymers in Complex Geometries
Graessley, William; Princeton University, Princeton, NJ 08544
CTS 9114536 A000; 02/01/1992; $102,342; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $15,000

Investigations of Polymer Conformation and Colliod Stability
Grant, Stanley; University of California-Irvine, Irvine, CA 92717
CTS 9208428 A000; 09/01/1992; $80,917; 12 mo.

Behavior of Fluids in Microporous Materials
Gubbins, Keith; Cornell University - Endowed, Ithaca, NY 14853
CTS 9122460 A000; 04/01/1992; $90,275; 12 mo.

Engineering Research Equipment: Sorptometer
Gubbins, Keith; Cornell University - Endowed, Ithaca, NY 14853
CTS 9213046 A000; 09/01/1992; $43,850; 12 mo.

Wall Turbulence
Hanratty, Thomas; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9200936 A000; 09/15/1992; $95,581; 12 mo.

Use of Direct Numerical Simulation and Lagrangian Methods in Turbulent Transport
Hanratty, Thomas; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9209877 A000; 09/01/1992; $87,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC and FLUID DYNAMICS AND HYDRAULICS $27,000

Study of Relation Between Rheology, and Bulk and Interfacial Microstructure of Liquid Crystal Polymers
Hill, David; University of Notre Dame, Notre Dame, IN 46556
CTS 9208478 A000; 09/01/1992; $99,987; 36 mo.

Adhesion, Deformation, and Fusion of Monolayers, Bilayers, and Membranes
Israelachvili, Jacob; Zasadzinski, Joseph; University of California-Santa Barbara, Santa Barbara, CA 93106
CTS 9015537 A001; 04/01/1991; $90,000; 12 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $30,000

Fluid Dynamics of Two Miscible Liquids with Slow Diffusion and Gradient Stresses
Joseph, Daniel; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9020666 A002; 04/01/1991; $87,571; 12 mo.

Causes and Consequences of Spontaneous Vesicle Formation
Kaler, Eric; Zasadzinski, Joseph; University of Delaware, Newark, DE 19716
CTS 9102719 A001; 08/01/1991; $85,889; 12 mo.

The Nucleation of Supersaturated Vapors
Katz, Joseph; Johns Hopkins University, Baltimore, MD 21218
CTS 9202057 A000; 07/15/1992; $70,000; 12 mo.

Relate NMR Relaxation Times of Pure Components and Mixtures with Viscosities and Diffusion Through Application of Corresponding States
Kobayashi, Riki; William Marsh Rice University, Houston, TX 77252
CTS 9004067 A001; 01/01/1991; $72,000; 12 mo.

Presidential Young Investigator Award: Thermodynamics and Transport Properties of Liquid-Crystalline Mixtures - Theory and Experiment
Kofke, David; SUNY at Buffalo, Buffalo, NY 14260
CTS 9057161 A002; 09/01/1990; $62,500; 12 mo.

Engineering Research Equipment Grant: Environmental Scanning Electron Microscope for In-Situ Manufacturing Processes, Materials Engineering and Tribological Studies
Komanduri, Ranga; Oklahoma State University, Stillwater, OK 74078
DDM 9112223 A000; 04/15/1992; $150,705; 12 mo.
Jointly Funded with MANUFACTURING MACHINES AND EQUIP $50,705

Supercritical Fluid Purification of Alane:Trimethylamine
Kosar, Walter; Advanced Technology Materials Inc., Danbury, CT 06810-4131
III 9160536 A000; 01/01/1992; $50,000; 6 mo.

Droplet Segregation in Miscibility-Gap Alloy Solidification Owing to Thin Film Effects
Krantz, William; Thiessen, David; University of Colorado at Boulder, Boulder, CO 80309
CTS 9103058 A001; 08/15/1991; $51,341; 12 mo.

Electric Field Effects on Polymer Alloys
Krause, Sonja; Wnek, Gary; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DMR 9202988 A000; 08/15/1992; $160,000; 12 mo.

Workshop on USA/German Collaboration in Research and Education: Chemical Engineering to be held on April 3, 1992
Kummler, Ralph; Wayne State University, Detroit, MI 48202
CTS 9204150 A000; 02/15/1992; $19,390; 12 mo.

A Fiber Optic Fluoresence Detector for the Lithium Ion
Langmuir, Margaret; Covalent Associates Inc., Woburn, MA 01801
III 9022320 A001; 08/01/1991; $5,000; 0 mo.

Oil-Water Interfacial Synthesis as a Benign and Safer Alternative to Conventional Liquid-Phase Syntheses
Lim, Phooi; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
CTS 9217443 A000; 09/01/1992; $90,000; 12 mo.
Jointly Funded with PROCESS AND REACTION ENGINEERING $15,000

Experimental Study of Liquid-Liquid-Vapor Phase Equilibria Behavior in Gas Solvent + Polar Solute Mixtures
Luks, Kraemer; University of Tulsa, Tulsa, OK 74104
CTS 8914725 A003; 03/01/1990; $52,447; 12 mo.

Statistical Mechanics of Associating Solutions
Mansoori, G. Ali; University of Illinois at Chicago, Chicago, IL 60680
CTS 9108595 A000; 11/01/1991; $62,942; 12 mo.

X-Ray Structural Study of the Effect of Substrate Preparation on Liquid Crystal Alignment
Martinez-Miranda, Luz; University of Pennsylvania, Philadelphia, PA 19104
ECS 9201986 A000; 08/15/1992; $180,000; 24 mo.
Jointly Funded with SOLID-STATE CHEMISTRY $90,000

Presidential Young Investigator Award: Measurement of Multiphase Transport Using Magnetic Resonance Imaging
McCarthy, Michael; University of California-Davis, Davis, CA 95616-8671
CTS 9057660 A001; 10/01/1990; $70,805; 12 mo.
CTS 9057660 A002; 10/01/1990; $66,695; 12 mo.

Travel to the IVth International Conference on Fundamentals of Adsorption, Kyoto, Japan, May 17-22, 1992
McCoy, Benjamin; University of California-Davis, Davis, CA 95616-8671
CTS 9203228 A000; 05/01/1992; $3,342; 12 mo.

A Model International Engineering Exchange Program: MSU/RWTH-Aachen, and Kaiserslautern
McGrath, John; Dhanak, Amritlal; Foss, John; Lloyd, John; Somerton, Craig; Michigan State University, East Lansing, MI 48824
CTS 9016477 A001; 07/15/1991; $59,784; 12 mo.
Jointly Funded with US/USSR ACTIVITIES $15,000

International Group Travel Grant: German Summer Program for Undergraduate Students in Separations, Interfacial, and Transport Phenomena (June-August 1993)
McGrath, John; Anderson, Donald; Michigan State University, East Lansing, MI 48824
CTS 9224387 A000; 10/01/1992; $29,777; 12 mo.

Experimental Study of High Pressure Copolymer Solution Behavior
McHugh, Mark; Johns Hopkins University, Baltimore, MD 21218
CTS 9122003 A000; 02/01/1992; $82,675; 12 mo.
CTS 9122003 A001; 02/01/1992; $6,083; 0 mo.

Modeling Adsorption Equilibria in Porous and Heterogeneous Solids
Monson, Peter; University of Massachusetts-Amherst, Amherst, MA 01003
CTS 9115297 A000; 01/15/1992; $78,276; 12 mo.

Engineering Foundation Conference on Dispersion and Aggregation: Fundamentals and Applications, March 15-20, 1992, Palm Coast, FL
Moudgil, Brij; United Engineering Trustees Inc., New York, NY 10017
CTS 9200614 A000; 02/01/1992; $8,000; 12 mo.

Engineering Research Equipment: High-Performance Graphics Workstation
Mountziaris, Triantafillos; Kofke, David; Tsamopoulos, John; Nitsche, Johannes; SUNY at Buffalo, Buffalo, NY 14260
CTS 9212682 A000; 07/01/1992; $54,000; 12 mo.

Cluster Formation in Metastable Solutions
Myerson, Allan; Arnold, Stephen; Polytechnic University, Brooklyn, NY 11201
CTS 9020233 A001; 04/01/1991; $62,500; 12 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $20,000

Research Initiation Awards: Configurational Transport Processes in Reactions with Enzymes Bound to Fabricated Tailored Supports
Nitsche, Johannes; SUNY at Buffalo, Buffalo, NY 14260
CTS 9111034 A001; 07/01/1991; $26,691; 12 mo.

Polymerized Bicontinuous Cubic Lipid Assemblies
O'Brien, David; University of Arizona, Tucson, AZ 85721
CTS 9202035 A000; 09/15/1992; $117,722; 12 mo.

Travel to Sixth International Conference on Fluid Properties & Phase Equilibria for Chemical Process Design, Cortina d'Ampezzo, Italy on July 19-24, 1992
O'Connell, John; University of Virginia-Main Campus, Charlottesville, VA 22901
CTS 9201434 A000; 04/01/1992; $17,000; 12 mo.

Presidential Young Investigator Award: Advanced Techniques for Physical Property Prediction in Complex Systems
Panagiotopoulos, Athanassios; Cornell University - Endowed, Ithaca, NY 14853
CTS 8958640 A003; 07/01/1989; $62,500; 12 mo.

1992 Gordon Conference on Science of Adhesion, August 10-14 at New Hampton, New Hampshire
Penn, Lynn; Cruickshank, Alexander; Gordon Research Conferences, Kingston, RI 02881
CTS 9206384 A000; 05/01/1992; $3,000; 12 mo.

Research Equipment Grants: An Advanced Thermal Analysis System for Macromolecular Coal Studies
Peppas, Nikolaos; Caruthers, James; Purdue University Research Foundation, West Lafayette, IN 47907
CTS 9112209 A001; 08/01/1991; $7,825; 0 mo.

Polymer Dissolution
Peppas, Nikolaos; Purdue University Research Foundation, West Lafayette, IN 47907
CTS 9212482 A000; 09/15/1992; $56,000; 12 mo.

Solid Phase Membrane Mimetics
Pidgeon, Charles; Marcus, Craig; Purdue University Research Foundation, West Lafayette, IN 47907
CTS 8908450 A002; 10/15/1989; $63,027; 12 mo.

Purification of Monoclonal Antibodies by Ion-Exchange Displacement Chromatography
Pinto, Neville; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 9207631 A000; 09/01/1992; $140,231; 24 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $139,895

Metal Deposition from Supercritical Electrolytes
Prentice, Geoffrey; Johns Hopkins University, Baltimore, MD 21218
CTS 9113462 A000; 12/01/1991; $124,961; 24 mo.

Structural Analyses of Complex Fluids: Inverse Scattering and Size and Charge Dispersity
Rajagopalan, Raj; University of Houston, Houston, TX 77204
CTS 9100139 A001; 08/01/1991; $75,000; 12 mo.

A Quantitative Study of Drop Coalescence in Stirred Dispersion
Ramkrishna, Doraiswami; Purdue University Research Foundation, West Lafayette, IN 47907
CTS 9020320 A001; 06/01/1991; $76,000; 12 mo.

Fabrication and Evaluation of Organized Molecular Assemblies of Electroactive Polymers
Rubner, Michael; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9023867 A001; 07/01/1991; $75,000; 12 mo.

Modification of the Surface Properties of Polymers
Ruckenstein, Eli; SUNY at Buffalo, Buffalo, NY 14260
CTS 9203384 A000; 07/15/1992; $92,696; 12 mo.

Creation and Dynamics of Multiple Orientational Defects in Liquid-Crystal Polymers and Their Influence on Flow Behavior
Ryskin, Gregory; Northwestern University, Evanston, IL 60208
CTS 9119858 A000; 03/15/1992; $99,865; 12 mo.

Electrolytic Steelmaking: Environmentally Sound Metal Production
Sadoway, Donald; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9216958 A000; 11/01/1992; $90,000; 12 mo.

Dynamic Monte Carlo and Molecular Dynamics Simulations of Transport Catalytic Materials
Sahimi, Muhammad; Shing, Katherine; University of Southern California, Los Angeles, CA 90089
CTS 9122529 A000; 04/15/1992; $43,200; 12 mo.

REU: Thermodynamics of Dilute Aqueous Solutions
Sandler, Stanley; University of Delaware, Newark, DE 19716
CTS 9123434 A000; 05/01/1992; $87,000; 12 mo.
CTS 9123434 A001; 05/01/1992; $6,000; 0 mo.

Computer-Aided Analysis of the Flow, Transport and Stability in Systems with Fixed, Free and/or Moving Interfaces
Sani, Robert; University of Colorado at Boulder, Boulder, CO 80309
CTS 9120673 A000; 02/01/1992; $83,747; 12 mo.

The Effect of Polymer Architecture and Segment-Surface Interactions on the Dynamic Properties of Polymer Layers Absorbed from Aqueous Solution
Santore, Maria; Lehigh University, Bethlehem, PA 18015
CTS 9209290 A000; 07/01/1992; $99,000; 36 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $99,000

Electrodeposition of Composition Modulated NiFe Alloys: Relationship Between Structure and Processing in a Transient Flow
Schwartz, Daniel; University of Washington, Seattle, WA 98195
CTS 9210637 A000; 08/01/1992; $69,997; 24 mo.

Presidential Young Investigator Award: Surface Chemistry in Semiconductor Thin Film Deposition
Seebauer, Edmund; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 8857037 A004; 06/01/1988; $62,500; 12 mo.

US-USSR Cooperative Research: Critical Phenomena in Multicomponent and Disperse Systems
Sengers, Jan; University of Maryland-College Park, College Park, MD 20742
CTS 9022662 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with STATE $8,000
CTS 9022662 A002; 07/01/1991; $35,000; 12 mo.

Rapid Precipitation of Homogeneous Polymer Blends
Shine, Annette; University of Delaware, Newark, DE 19716
DDM 9102435 A001; 08/01/1991; $85,767; 12 mo.

Accelerated Coalescence in Phase Separation of Partially Miscible Solvents
Shinnar, Reuel; Mauri, Roberto; CUNY-City College, New York, NY 10031
CTS 9216133 A000; 09/15/1992; $93,951; 12 mo.

Theory of Molecular Diffusion on Surfaces and in Microporous Materials
Silverberg, Marvin; Oregon Graduate Institute of Science & Technology, Beaverton, OR 97006-1999
CTS 9211333 A000; 07/01/1992; $99,126; 36 mo.

Small Grants for Exploratory Research: Water Analogs to Carbon Buckyballs: Structure H Hydrate and Beyond
Sloan, E. Dendy; Colorado School of Mines, Golden, CO 80401
CTS 9206172 A000; 01/15/1992; $49,549; 12 mo.

Stability of Colloidal Dispersions in Non-Aqueous Media
Somasundaran, Ponisseril; Columbia University, New York, NY 10027
CTS 9011991 A001; 02/01/1991; $70,000; 12 mo.

Electron Spin Resonance Spectrometer to Probe Microstructures at Interfaces
Somasundaran, Ponisseril; Gryte, Carl; Turro, Nicholas; Columbia University, New York, NY 10027
CTS 9111909 A001; 09/01/1991; $883; 0 mo.

Partial Core Support for the Board on Chemical Sciences and Technology
Spindel, William; National Academy of Sciences, Washington, DC 20418
CTS 9014558 A001; 10/01/1990; $30,000; 12 mo.

Oscillating Bubble Tensiometry: A New Method for Measuring the Kinetics of Surfactant Adsorptive-Desorptive Exchange
Stebe, Kathleen; Johns Hopkins University, Baltimore, MD 21218
CTS 9210652 A000; 07/01/1992; $100,000; 36 mo.

Transport Modelling of Packed-Tube Reactors
Stewart, Warren; University of Wisconsin-Madison, Madison, WI 53706
CTS 9120325 A000; 04/01/1992; $83,910; 12 mo.

SEM/TEM Study of Zeolite Crystallization
Thompson, Robert; Worcester Polytechnic Institute, Worcester, MA 01609
CTS 9103357 A001; 09/01/1991; $74,994; 12 mo.
Jointly Funded with SEPAR AND PURIFICATION PROCESSES $34,994

Wave Propagation, Flow and Phase Changes in Liquid-Vapor Systems
Thompson, Philip; Hirsa, Amir; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
CTS 9119468 A000; 09/01/1992; $107,000; 12 mo.

Tailored Interfaces with Amphiphilic Polymers
Tirrell, Matthew; Mays, J.W.; Russel, William; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9107025 A001; 09/01/1991; $112,500; 12 mo.
Jointly Funded with POLYMERS $112,500

Presidential Young Investigator Award: Solid-Liquid Interfacial Phenomena
Vanderlick, T. Kyle; University of Pennsylvania, Philadelphia, PA 19104
CTS 8957051 A004; 07/15/1989; $62,500; 12 mo.

Research Initiation Awards: In-Situ Measurement of Interfacial Mass Changes with Chemically Milled At-Cut Quartz Crystals
Ward, Michael; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9111000 A001; 09/01/1991; $30,000; 12 mo.

Thin Liquid Films - Structure and Stability
Wasan, Darsh; Illinois Institute of Technology, Chicago, IL 60616
CTS 9106589 A001; 07/15/1991; $79,000; 12 mo.

Flow of Simple, Oligomeric and Polymeric Fluids in Well-Defined Straight Micropores: A Combined Molecular Simulation and Experimental Approach
Westerman-Clark, Gerald; Bitsanis, I.; University of Florida, Gainesville, FL 32611
CTS 9015882 A001; 06/01/1991; $80,000; 12 mo.

Engineering Research Equipment: A Modified STM/AFM for Complex Fluid Investigations
Zasadzinski, Joseph; University of California-Santa Barbara, Santa Barbara, CA 93106
CTS 9212790 A000; 09/01/1992; $35,565; 12 mo.

Separation and Purification Processes

Polymer-in-Pore Composite Membranes
Anderson, John; Carnegie-Mellon University, Pittsburgh, PA 15213
CTS 9122573 A000; 03/15/1992; $84,995; 12 mo.

Nonspecific and Specific Adhesion of Bacterial Cells to Membranes
Anderson, Kimberly; Kentucky Research Foundation, Lexington, KY 40506
CTS 9216258 A000; 06/15/1992; $42,505; 12 mo.

Small Grant for Exploratory Research: A Novel Application of Total Internal Reflection Microscopy: Electrokinetic Lift
Bike, Stacy; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9216077 A000; 09/01/1992; $50,000; 12 mo.

Molecular Thermodynamics of Protein Precipitation in Aqueous Solution
Blanch, Harvey; Prausnitz, John; University of California-Berkeley, Berkeley, CA 94720
CTS 8914849 A002; 09/15/1990; $63,795; 0 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG $63,795

NSF Young Investigator
Chakaraborty, Arup; University of California-Berkeley, Berkeley, CA 94720
CTS 9257639 A000; 09/01/1992; $25,000; 12 mo.

Molecular Separations Using Mobile Phases in Their Near-Critical Retrograde Regions
Chimowitz, Eldred; University of Rochester, Rochester, NY 14627
CTS 8908828 A002; 10/15/1989; $83,837; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $41,919

Solution Properties and Membrane Formation of New Block Copolymers
Cohen, Claude; Cornell University - Endowed, Ithaca, NY 14853
CTS 8907153 A002; 09/01/1989; $31,500; 12 mo.
Jointly Funded with POLYMERS $31,500

Presidential Young Investigator Award: Downstream Bioprocessing and Production Scale Displacement Chromatography
Cramer, Steven; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
CTS 8957746 A003; 10/01/1989; $62,500; 12 mo.

Membranes with Chained Carriers
Cussler, Edward; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9123837 A000; 09/01/1992; $90,802; 12 mo.

Fundamentals of Fouling and Flux Decline in Crossflow Membrane Filtration
Davis, Robert; University of Colorado at Boulder, Boulder, CO 80309
CTS 9107703 A001; 09/15/1991; $14,292; 0 mo.
CTS 9107703 A002; 09/15/1991; $5,850; 0 mo.

New Tools for the Computer-Aided Design of Nonideal Distillation Systems
Doherty, Michael; University of Massachusetts-Amherst, Amherst, MA 01003
CTS 9113717 A000; 11/01/1991; $244,855; 36 mo.

Industry/Academic Cooperative Research: A Fundamental Study of Non-Fickian Transport in Polymers
Durning, Christopher; Columbia University, New York, NY 10027
CTS 8919665 A001; 10/01/1990; $59,663; 12 mo.

A Novel Approach to the Optimal Design of Hybrid Waste-Recovery Processes
El-Halwagi, Mahmoud; Auburn University, Auburn, AL 36849
CTS 9211039 A000; 06/01/1992; $89,739; 36 mo.

Presidential Young Investigator Award: Optimal Synthesis and Control of Chemical Processes
Floudas, Christodoulos; Princeton University, Princeton, NJ 08544
CTS 8857013 A004; 07/01/1988; $67,500; 12 mo.

Engineering Research Equipment: Acquisition of an X-Ray Photoelectron Spectroscopy Research Instrument
Gardner, Steven; Pittman, Charles; Mississippi State University, Mississippi State, MS 39762
CTS 9212295 A000; 09/01/1992; $75,000; 12 mo.

Zeolite Membranes
Gavalas, George; Davis, Mark; California Institute of Technology, Pasadena, CA 91125
CTS 9114829 A000; 02/15/1992; $107,236; 12 mo.

Continuous SPLITT Fractionation
Giddings, J. Calvin; University of Utah, Salt Lake City, UT 84112
CTS 9204086 A000; 07/15/1992; $124,462; 12 mo.

A Hydrodynamically Controlled Interface for Phase Transfer Catalysis and Related Processes
Goddard, Joe; University of California-San Diego, San Diego, CA 92093
CTS 9296008 A001; 08/31/1991; $74,170; 12 mo.

Mathematical Sciences: Flow and Separation in a Centrifugal Spectrometer
Greenspan, Harvey; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9207284 A000; 08/15/1992; $117,870; 12 mo.

Aqueous Two-Phase Extraction: Theory and Experiment
Hall, Carol; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
CTS 9208590 A000; 09/15/1992; $99,491; 12 mo.

Distillation Dynamics: Propagation and Fate of Disturbances in Multicomponent Fractionation Columns
Helfferich, Friedrich; Hwang, Ying-Long; Pennsylvania State Univ.-University Park, University Park, PA 16801
CTS 9020749 A001; 03/01/1991; $64,077; 12 mo.

Solution Properties and Membrane Formation of New Block Copolymers
Hogen-Esch, Thieo; University of Southern California, Los Angeles, CA 90089
CTS 8919745 A002; 09/01/1989; $31,500; 12 mo.
Jointly Funded with POLYMERS $31,500

Adhesion, Deformation, and Fusion of Monolayers, Bilayers, and Membranes
Israelachvili, Jacob; Zasadzinski, Joseph; University of California-Santa Barbara, Santa Barbara, CA 93106
CTS 9015537 A001; 04/01/1991; $90,000; 12 mo.

Biomineralization Mimetics and Particle Synthesis in Microstructured Environments
John, Vijay; McPherson, Gary; O'Connor, Kim; Tulane University, New Orleans, LA 70118
BCS 9202123 A000; 09/01/1992; $348,000; 36 mo.

Selective Precipitation of Protiens with Ligand-Modified Phospholipids
Kilpatrick, Peter; Carbonell, Ruben; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
CTS 9200823 A000; 08/01/1992; $118,996; 12 mo.

Formation of Chemically Modified Ceramic Membranes and Their Transport Characterization
Koros, William; University of Texas at Austin, Austin, TX 78712
CTS 9022622 A001; 05/01/1991; $74,584; 12 mo.

Molybdate Clustering in Crystallization Solutions
Larson, Maurice; Schrader, Glenn; Iowa State University, Ames, IA 50011
CTS 8912370 A002; 02/01/1990; $63,326; 12 mo.

Research Initiation Awards: Enhanced Micellar Electrokinetic Capillary Chromatography for Bioseparations
Lee, Cheng; University of Maryland-Baltimore County, Baltimore, MD 21228
CTS 9108875 A001; 07/15/1991; $10,000; 0 mo.
Jointly Funded with BIOTECHNOLOGY $5,000

Relation of Protein Electrostatic Properties to Separations Behavior
Lenhoff, Abraham; Kaler, Eric; University of Delaware, Newark, DE 19716
CTS 9111604 A001; 09/01/1991; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

Protein Separations: A Thermodynamic Approach
Lenhoff, Abraham; Sandler, Stanley; Paulaitis, Michael; Kaler, Eric; University of Delaware, Newark, DE 19716
BCS 9210401 A000; 09/15/1992; $267,513; 12 mo.

Developing Adsorptive Protein Separations
Lightfoot, E.; Root, Thatcher; University of Wisconsin-Madison, Madison, WI 53706
CTS 9204436 A000; 09/15/1992; $130,000; 12 mo.

Counter-Diffusion CVD for Preparation of Dense Inorganic Membrane Composites
Lin, Y.; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 9208518 A000; 07/01/1992; $99,556; 36 mo.

Engineering Research Equipment: Adsorption Porosimeter for Ceramic Membrane Studies
Lin, Y.; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 9212272 A000; 08/15/1992; $33,550; 12 mo.

Engineering Research Equipment: Dynamic Mechanical Analyzers
Lipscomb, G. Glenn; Fried, Joel; Mark, James; Gehrke, Stevin; Pollack, Steven; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 9212964 A000; 09/01/1992; $133,630; 12 mo.

Vesicular Biomimetic Membranes for Metal Recovery
Monbouquette, Harold; University of California-Los Angeles, Los Angeles, CA 90024
CTS 9212270 A000; 08/15/1992; $94,069; 12 mo.

Ultrapurification of Superconducting Powders
Moudgil, Brij; University of Florida, Gainesville, FL 32611
CTS 9222854 A000; 10/01/1992; $50,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $50,000

Protein Purification Using an Affinity Membrane
Muchmore, David; Bend Research Inc., Bend, OR 97701-8599
III 9100200 A000; 11/01/1991; $249,680; 24 mo.

Cluster Formation in Metastable Solutions
Myerson, Allan; Arnold, Stephen; Polytechnic University, Brooklyn, NY 11201
CTS 9020233 A001; 04/01/1991; $62,500; 12 mo.

Antisedimentation Dialysis: Fundamentals and Applications in Membrane Characterization, Fractionation of Macrosolutes, and Simulation of Microgravity
Nitsche, Ludwig; University of Illinois at Chicago, Chicago, IL 60680
CTS 9210277 A000; 06/01/1992; $100,000; 36 mo.

NSF Young Investigator
Nitsche, Johannes; SUNY at Buffalo, Buffalo, NY 14260
CTS 9257391 A000; 09/01/1992; $25,000; 12 mo.

Industry University Cooperative Research Center for for Separations Using Thin Films
Noble, Richard; University of Colorado at Boulder, Boulder, CO 80309
EEC 9103095 A001; 03/15/1991; $65,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $15,000

Materials Synthesis and Processing: A Novel Technique of Net-Form Materials Synthesis
Orme, Melissa; Muntz, E.; Langdon, Terence; University of Southern California, Los Angeles, CA 90089
DDM 9204201 A000; 10/01/1992; $313,399; 24 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS and METALLURGY $240,030

Solid Phase Membrane Mimetics (II)
Pidgeon, Charles; Marcus, Craig; Purdue University Research Foundation, West Lafayette, IN 47907
CTS 9214794 A000; 10/01/1992; $74,964; 12 mo.

Purification of Monoclonal Antibodies by Ion-Exchange Displacement Chromatography
Pinto, Neville; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 9207631 A000; 09/01/1992; $140,231; 24 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO and PARTICULATE AND MULTIPHASE PROC $139,895

NSF Young Investigator
Ploehn, Harry; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
CTS 9258137 A000; 08/15/1992; $25,000; 12 mo.

Characterization of Mixing Phenomena Impacting the Formation of Protein Precipitates for Bioprocessing Applications
Przybycien, Todd; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
CTS 9211666 A000; 08/01/1992; $100,000; 36 mo.

Use of Micellar-Enhanced Ultrafiltration for Removal/Recovery of Dissolved Organics and Metals from Water
Roberts, Bruce; Surfactant Associates Inc., Norman, OK 73071
III 9160806 A000; 02/15/1992; $50,000; 6 mo.

Investigation of Aqueous Biphasic Polyethylene Glycol Systems for the Selective Liquid/Liquid Extraction of Dissolved Metal Ions
Rogers, Robin; Northern Illinois University, De Kalb, IL 60115
CTS 9207264 A000; 09/15/1992; $88,811; 12 mo.

The Effect of Polymer Architecture and Segment-Surface Interactions on the Dynamic Properties of Polymer Layers Absorbed from Aqueous Solution
Santore, Maria; Lehigh University, Bethlehem, PA 18015
CTS 9209290 A000; 07/01/1992; $99,000; 36 mo.

Use of Ligand-Modified Micellar-Enhanced Ultrafiltration in the Selective Removal of Toxic Metal Ions from Polluted Water
Scamehorn, John; Taylor, Richard; Christian, Sherril; University of Oklahoma-Norman Campus, Norman, OK 73019
CTS 9123388 A000; 07/01/1992; $324,988; 36 mo.

Electrochemical Formation of Thin Ceramic Mixed Conduction Membranes for Oxygen Separation
Schwartz, Michael; Eltron Research Inc., Aurora, IL 60504
III 9161276 A000; 01/15/1992; $49,998; 6 mo.

Research Initiation Award: Polymers for Selective Binding of Metal Ions
Scranton, Alec; Michigan State University, East Lansing, MI 48824
CTS 9110163 A001; 06/15/1991; $14,700; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $11,025

Assessment of Research and Development in Japan and Europe
Shelton, R. Duane; Loyola College in Maryland, Baltimore, MD 21210
ENG 9111333 A002; 08/01/1991; $448,750; 0 mo.
Jointly Funded with OCEAN ENGINEERING SYSTEMS $70,000

Support for the 1992 Gordon Research Conference on Separation and Purification to be held on August 10-14, 1992
Sherman, John; Helfferich, Friedrich; Gordon Research Conferences, Kingston, RI 02881
CTS 9216256 A000; 08/01/1992; $10,000; 12 mo.

Optimizing Control of Liquid-Liquid Extraction Columns
Tavlarides, Lawrence; Syracuse University, Syracuse, NY 13244-5300
CTS 9017138 A001; 02/15/1991; $39,859; 12 mo.

SEM/TEM Study of Zeolite Crystallization
Thompson, Robert; Worcester Polytechnic Institute, Worcester, MA 01609
CTS 9103357 A001; 09/01/1991; $74,994; 12 mo.

Membrane-Based Process for the Synthesis of Chiral Pyrethroids
van Eikeren, Paul; Bend Research Inc., Bend, OR 97701-8599
III 9109179 A000; 06/01/1992; $134,816; 12 mo.

Membrane-Based Two-Phase Flow System for Enantiomer Separation
van Eikeren, Paul; Bend Research Inc., Bend, OR 97701-8599
III 9160783 A000; 02/01/1992; $49,896; 6 mo.

Small Grant for Exploratory Research: Molecular Engineering at Ultrathin Organic Films for Membrane Separations
Vanderlick, T. Kyle; University of Pennsylvania, Philadelphia, PA 19104
CTS 9215577 A000; 07/01/1992; $49,499; 12 mo.

Flow of Simple, Oligomeric and Polymeric Fluids in Well-Defined Straight Micropores: A Combined Molecular Simulation and Experimental Approach
Westerman-Clark, Gerald; Bitsanis, I.; University of Florida, Gainesville, FL 32611
CTS 9015882 A001; 06/01/1991; $80,000; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $30,000

Research Initiation Award: Protein Separation Utilizing Utilizing Temperature-Sensitive Microemulsions
Wiencek, John; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
CTS 9110757 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Simultaneous Separation and Polymerization of Hazardous Organics via Enzyme Catalysts
Wiencek, John; Yarmush, Martin; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
CTS 9213496 A000; 06/15/1992; $34,826; 12 mo.

Presidential Young Investigator Award: Protein Separations by Adsorption and Molecular Recognition
Willson, Richard; University of Houston, Houston, TX 77204
CTS 9058271 A002; 07/01/1990; $62,500; 12 mo.

New Sorbents for Gas Separations and Purifications
Yang, Ralph; SUNY at Buffalo, Buffalo, NY 14260
CTS 9212279 A000; 09/15/1992; $74,463; 12 mo.

Special Programs

Board on Chemical Sciences and Technology Core Support
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
CHE 9115617 A003; 08/01/1991; $93,820; 12 mo.

Investigation of the Laminar Flamelet Model of Turbulent Diffusion Flames
Kosaly, George; Riley, James; University of Washington, Seattle, WA 98195
CTS 9021928 A002; 03/01/1991; $103,324; 12 mo.
Jointly Funded with AIR FORCE-INVES OF LAMINAR FLA $43,324

An Assessment of U.S.-German Exchange Programs in Mechanical Engineering Workshop to be held March 1992 in New Orleans, Louisiana
Fletcher, Leroy; Texas A&M University Research Foundation, College Station, TX 77843
CTS 9211694 A000; 03/15/1992; $44,687; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $5,000

A Model International Engineering Exchange Program: MSU/RWTH-Aachen, and Kaiserslautern
McGrath, John; Dhanak, Amritlal; Foss, John; Lloyd, John; Somerton, Craig; Michigan State University, East Lansing, MI 48824
CTS 9016477 A001; 07/15/1991; $59,784; 12 mo.
Jointly Funded with US/USSR ACTIVITIES $15,000

Physical and Chemical Behavior of Small Particles
Ray, Asit; Kentucky Research Foundation, Lexington, KY 40506
CTS 8912282 A004; 08/15/1989; $75,000; 0 mo.
Jointly Funded with ARMY-RES ON SNGL PART DYNAMICS $75,000

Light Scattering Studies of Fractal Soot Aggregates in Flames
Sorensen, Christopher; Kansas State University, Manhattan, KS 66506
CTS 9024668 A001; 07/15/1991; $25,000; 12 mo.
Jointly Funded with NIST $25,000

Partial Core Support for the Board on Chemical Sciences and Technology
Spindel, William; National Academy of Sciences, Washington, DC 20418
CTS 9014558 A001; 10/01/1990; $30,000; 12 mo.

Thermal Systems Program

Combustion and Thermal Plasmas

Engineering Research Equipment: Mossbauer Spectrometer with Magnetic Resolution for Catalysis/Coal Mineral Research
Bartholomew, Calvin; Hecker, William; Eatough, Delbert; Dubow, Joel; Harb, John; Brigham Young University, Provo, UT 84602
CTS 9212479 A000; 07/01/1992; $38,000; 12 mo.

Collision Cross Sections for Electron-Impact Dominated Processes in Etching Plasmas
Becker, Kurt; CUNY-City College, New York, NY 10031
CTS 9017211 A001; 06/01/1991; $4,688; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and INTERFAC, TRANS, AND THERMODYN PRO $3,907
CTS 9017211 A002; 06/01/1991; $70,000; 12 mo.
Jointly Funded with SPECTROSCOPY and QUANT ELECTRON, PLASMA AND ELECTRO $30,000

Twenty-Fourth Symposium (International) on Combustion
Calcote, Hartwell; Combustion Institute, Pittsburgh, PA 15213
CTS 9121338 A000; 11/01/1991; $10,000; 24 mo.

Combustion Synthesis of Silicon Carbide for Advanced Ceramics
Calcote, Hartwell; AeroChem Research Laboratories Inc., Princeton, NJ 08542
III 9160896 A000; 01/01/1992; $50,000; 6 mo.

The Effect of Pressure on Low and Intermediate Temperature Hydrocarbon Oxidation
Cernansky, Nicholas; Drexel University, Philadelphia, PA 19104
CTS 8914756 A001; 02/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Engineering Research Equipment: Multidimensional Gas Chromatography System
Cernansky, Nicholas; Drexel University, Philadelphia, PA 19104
CTS 9212892 A000; 07/01/1992; $13,728; 12 mo.

Thermal Front Propagation of Fast Igniting Catalytic Converters
Chang, Hseuh-Chia; Wolf, Eduardo; University of Notre Dame, Notre Dame, IN 46556
CTS 9200210 A000; 06/15/1992; $210,000; 36 mo.

Research Initiation Award: Experimental Study on Laminar and Turbulent Flame Thickness
Cho, Peck; Michigan Technological University, Houghton, MI 49931
CTS 9009518 A001; 06/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Use of Low Cost Proprientary Catalyst to Reduce NOx in the Presence of Ammonia
Colannino, Joseph; Carnot Technical Services Inc., Tustin, CA 92680-7388
III 9104439 A000; 09/15/1991; $249,695; 24 mo.

Fundamental Deposition Processes in Optical Fiber Manufacturing
Daily, John; University of Colorado at Boulder, Boulder, CO 80309
CTS 9005765 A001; 08/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Presidential Young Investigator Award
Drallmeier, James; University of Missouri-Rolla, Rolla, MO 65401
CTS 9157094 A001; 08/01/1991; $62,500; 12 mo.

Flame-Vortex Interaction Studies to Reduce Pollutants from Engines
Driscoll, James; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9123834 A000; 07/01/1992; $74,021; 12 mo.

Presidential Young Investigator Award: Combustion in Boundary Layers and Particle-Laden Flows
Dunn-Rankin, Derek; University of California-Irvine, Irvine, CA 92717
CTS 8957208 A004; 07/15/1989; $62,500; 12 mo.

Aerodynamics and Kinetics Effects on the Dynamics of Steady/Unsteady Laminar, Stretched Flames
Egolfopoulos, Fokion; University of Southern California, Los Angeles, CA 90089
CTS 9211844 A000; 09/01/1992; $90,000; 36 mo.

Turbulence/Premixed-Flame Interactions in Isotropic Turbulence
Faeth, Gerard; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9019813 A001; 02/01/1991; $59,445; 12 mo.

An Assessment of U.S.-German Exchange Programs in Mechanical Engineering Workshop to be held March 1992 in New Orleans, Louisiana
Fletcher, Leroy; Texas A&M University Research Foundation, College Station, TX 77843
CTS 9211694 A000; 03/15/1992; $44,687; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $5,000

Wide-Temperature Range Chemical Kinetics Studies for Understanding the Role of Chromium in Waste Incineration
Fontijn, Arthur; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
CTS 9000309 A002; 05/01/1990; $73,220; 12 mo.

Engineering Research Equipment: Fourier Transform Infrared Spectrometer for Combustion and Gasification Research
Frederick, W. J.; Oregon State University, Corvallis, OR 97331-5503
CTS 9213028 A000; 07/01/1992; $47,433; 12 mo.

Dynamics of Excimer Laser Ablation in Plasma Environments
Gilgenbach, Ronald; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9108971 A001; 08/01/1991; $43,305; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $43,305

Plasma Synthesis of Ceramics: Studies in Particle Nucleation and Growth
Girshick, Steven; McMurry, Peter; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9006237 A003; 07/01/1990; $69,571; 12 mo.

Diamond Film Deposition in a Radio-Frequency Thermal Plasma
Girshick, Steven; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9115464 A000; 12/15/1991; $247,071; 36 mo.

Direct Numerical Simulations and Large Eddy Simulations of Unpremixed Turbulent Flames
Givi, Peyman; McMurtry, Patrick; SUNY at Buffalo, Buffalo, NY 14260
CTS 9012832 A001; 12/15/1990; $7,566; 0 mo.

Presidential Young Investigator Award: Simulation of Complex Reacting Flows
Givi, Peyman; SUNY at Buffalo, Buffalo, NY 14260
CTS 9057460 A002; 09/01/1990; $37,150; 6 mo.

Presidential Faculty Fellow
Givi, Peyman; SUNY at Buffalo, Buffalo, NY 14260
CTS 9253488 A000; 09/01/1992; $100,000; 12 mo.

NSF Young Investigator
Gomez, Alessandro; Yale University, New Haven, CT 06520
CTS 9257951 A000; 08/15/1992; $25,000; 12 mo.

Presidential Young Investigator Award: Combustion Synthesis of Diamond
Goodwin, David; California Institute of Technology, Pasadena, CA 91125
CTS 9057921 A003; 07/15/1990; $62,500; 12 mo.

Presidential Young Investigator Award
Gore, Jayavant; Purdue University Research Foundation, West Lafayette, IN 47907
CTS 9157920 A001; 09/01/1991; $54,900; 12 mo.

Investigation of Nanoparticle Formation Using a Plasma Expansion Process
Heberlein, Joachim; McMurry, Peter; Girshick, Steven; Martins, Jose' L.; University of Minnesota Institute of Technology, Minneapolis, MN 55455
ECS 9118100 A001; 10/01/1991; $200,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $15,000

Research Initiation Award: Combustion in an Asymmetric Configuration
Hertzberg, Jean; University of Colorado at Boulder, Boulder, CO 80309
CTS 9109778 A001; 06/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Incineration of Fixed Nitrogen Compounds
Hesketh, Robert; University of Tulsa, Tulsa, OK 74104
CTS 9211905 A000; 07/01/1992; $96,632; 36 mo.

Mathematical Sciences: Wave Motion in (Primarily) Reactive Fluids Induced by Rapid Energy Deposition
Kapila, Ashwani; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DMS 9122547 A000; 06/01/1992; $30,000; 12 mo.

Diamond Film Generation from a Combustion Jet
Keil, David; AeroChem Research Laboratories Inc., Princeton, NJ 08542
III 9161303 A000; 01/01/1992; $50,000; 6 mo.

Presidential Young Investigator Award: Particulates and Soot in Flames
Kennedy, Ian; University of California-Davis, Davis, CA 95616-8671
CTS 8857477 A005; 07/01/1988; $62,500; 12 mo.

Investigation of the Laminar Flamelet Model of Turbulent Diffusion Flames
Kosaly, George; Riley, James; University of Washington, Seattle, WA 98195
CTS 9021928 A002; 03/01/1991; $103,324; 12 mo.
Jointly Funded with AIR FORCE-INVES OF LAMINAR FLA $43,324

Engineering Research Equipment: FTIR Spectrometer for Incineration Byproducts
Kramlich, John; Malte, Phillip; University of Washington, Seattle, WA 98195
CTS 9213121 A000; 07/01/1992; $35,931; 12 mo.

Particles in rf Plasma Processing Discharges: Generation, Transport and Plasma Dynamics
Kushner, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9113215 A001; 08/15/1991; $4,450; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,337
CTS 9113215 A002; 08/15/1991; $73,105; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC and QUANT ELECTRON, PLASMA AND ELECTRO $48,736

Combustion of Chlorinated Hydrocarbons in Hazardous Waste Incineration
Law, Chung; Princeton University, Princeton, NJ 08544
CTS 8915397 A002; 02/01/1990; $75,000; 12 mo.

Engineering Research Equipment Grant: Laser Diagnostics Imaging System for Turbulent Combustion Research
Law, Chung; Kreutz, Thomas; Princeton University, Princeton, NJ 08544
CTS 9212518 A000; 07/01/1992; $59,867; 12 mo.

Presidential Young Investigator Award: Hazardous Waste Thermal Remediation
Lighty, JoAnn; University of Utah, Salt Lake City, UT 84112
CTS 9057963 A003; 09/01/1990; $37,500; 0 mo.
CTS 9057963 A004; 09/01/1990; $25,000; 12 mo.

Combustion Synthesis: Filtration Combustion
Matkowsky, Bernard; Northwestern University, Evanston, IL 60208
CTS 9008624 A002; 09/15/1990; $10,000; 0 mo.
Jointly Funded with FSU SUPPLEMENTS $8,000

Engineering Research Equipment: Gas Chromatograph with Data System
McKinnon, J.; Colorado School of Mines, Golden, CO 80401
CTS 9212904 A000; 07/15/1992; $21,803; 12 mo.

Mechanisms of Fullerene Synthesis in Flames
McKinnon, J.; Colorado School of Mines, Golden, CO 80401
CTS 9215795 A000; 09/01/1992; $66,306; 12 mo.

NSF Young Investigator
McKinnon, J.; Colorado School of Mines, Golden, CO 80401
CTS 9258149 A000; 09/01/1992; $25,000; 12 mo.

NSF Young Investigator
McMurtry, Patrick; University of Utah, Salt Lake City, UT 84112
CTS 9258445 A000; 09/01/1992; $25,000; 12 mo.

Excimer Laser System for Pump-Probe Experiments
Miller, J. Houston; Vertes, Akos; George Washington University, Washington, DC 20052
CTS 9212389 A000; 08/01/1992; $65,312; 12 mo.

Engineering Research Equipment: High Speed Data Acquisition/Analysis System
Miller, David; Owens, Kevin; Drexel University, Philadelphia, PA 19104
CTS 9212909 A000; 07/01/1992; $18,950; 12 mo.

Small Grant for Exploratory Research: Development of a New Diagnostic for Hydroperoxy Radical Measurement
Miller, David; Owens, Kevin; Drexel University, Philadelphia, PA 19104
CTS 9213932 A000; 04/15/1992; $50,000; 12 mo.

The Synergistic Effects of Ceramic Materials Synthesis Using Vapor-Enhanced Reactive Sintering
Moore, John; Readey, Dennis; Wirth, David; Colorado School of Mines, Golden, CO 80401
CTS 9202948 A000; 09/15/1992; $249,500; 12 mo.
Jointly Funded with CERAMICS and MATERIALS PROCESSING AND MANUFCT $99,500

Engineering Research Equipment: Intensified CCD Camera for Supersonic Combustion Studies
Mungal, Mark; Stanford University, Stanford, CA 94305
CTS 9212687 A000; 08/01/1992; $29,788; 12 mo.

The Thermal Characteristics of Combustion Waves in Self-Sustaining Reactions
Munir, Zuhair; University of California-Davis, Davis, CA 95616-8671
CTS 9011242 A002; 09/01/1990; $10,000; 0 mo.

The Centrifugal Synthesis and Processing of Functionally Gradient Materials
Munir, Zuhair; McCoy, Benjamin; Risbud, Subhash; Holt, J. Birch; University of California-Davis, Davis, CA 95616-8671
DMR 9201685 A000; 09/01/1992; $230,000; 14 mo.
Jointly Funded with LIGHTWAVE TECHNOLOGY $120,000

1992 Gordon Research Conference on High Temperature Chemistry, Kingston, R.I., July 20-24, 1992
Myers, Clifford; Gordon Research Conferences, Kingston, RI 02881
DMR 9123146 A000; 06/01/1992; $6,500; 6 mo.

Presidential Young Investigator Award: Catalytic Combustion
Pfefferle, Lisa; Yale University, New Haven, CT 06520
CTS 8657648 A006; 07/01/1987; $37,500; 0 mo.

Presidential Young Investigator Award: Combustion and Laser Diagnostic Research
Pitz, Robert; Vanderbilt University, Nashville, TN 37240
CTS 8657130 A007; 07/15/1987; $37,500; 0 mo.

Organization of the Laser Application to Chemical Analysis Topical Meeting
Quinn, Jarus; Optical Society of America, Washington, DC 20036
CTS 9207957 A000; 05/01/1992; $10,000; 12 mo.

Presidential Young Investigator Award: Mechanisms of Flammability Limits in Premixed Gases
Ronney, Paul; Princeton University, Princeton, NJ 08544
CTS 8657228 A005; 06/01/1987; $62,500; 12 mo.

Synthesis of Ultrafine Particles of Nanosize Reinforced Composites
Sastry, Shankar; Kelton, Kenneth; Axelbaum, Richard; Buhro, Willliam; Washington University, St. Louis, MO 63130
ECS 9119006 A001; 10/01/1991; $200,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $15,000

Joint U.S.-Russia Conference on Catalytic Combustion
Schmidt, Lanny; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9213663 A000; 06/15/1992; $6,000; 9 mo.

The Detailed Chemical Mechanisms for Na2SO4 and Na2CO3 Flame Generated Deposition on Heated Metal Surfaces: Implications for High Temperature Corrosion and Its Control
Schofield, Keith; Steinberg, Martin; University of California-Santa Barbara, Santa Barbara, CA 93106
CTS 9020355 A001; 08/15/1991; $50,000; 12 mo.

Chemical Kinetics of Combustion of Chlorinated Hydrocarbons
Senkan, Selim; University of California-Los Angeles, Los Angeles, CA 90024
CTS 9196101 A002; 01/01/1991; $100,000; 12 mo.

Measurements and Modeling of the Behavior of Charring Polymers in Fires
Serio, Michael; Advanced Fuel Research Inc., East Hartford, CT 06138-0379
III 9101585 A000; 07/01/1992; $248,879; 24 mo.

Hydrodynamic Aspects of Flame Propagation
Sivashinsky, Gregory; CUNY-City College, New York, NY 10031
CTS 9213414 A000; 09/01/1992; $90,424; 12 mo.

Study of Transient Phenomena in a Small-Scale Hazardous Waste Incinerator
Smith, Owen; Karagozian, Ann; Osher, Stanley; University of California-Los Angeles, Los Angeles, CA 90024
CTS 9021021 A001; 07/15/1991; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750
CTS 9021021 A002; 07/15/1991; $90,000; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS and APPLIED MATHEMATICS $45,000

Fundamental Studies of Controlled Microstructure Development by the Self-Propagating High-Temperature Synthesis Process
Stangle, Gregory; McCauley, James; Spriggs, Richard; Alfred University NY State College of Ceramics, Alfred, NY 14802
CTS 9114253 A000; 02/15/1992; $84,343; 12 mo.
Jointly Funded with THERMAL TRANSPORT AND PROCESSING and CERAMICS $48,196

Mixture Fraction Measurement by Rayleigh Scattering
Talbot, Lawrence; Dibble, Robert; University of California-Berkeley, Berkeley, CA 94720
CTS 9107719 A001; 08/15/1991; $100,000; 12 mo.

Dynamic Synthesis and Processing of High Temperature Materials
Thadhani, Naresh; Persson, Per-Anders; New Mexico Institute of Mining and Technology, Socorro, NM 87801
DMR 9116570 A000; 04/01/1992; $250,000; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $45,000

Spatially Resolved Diagnostics Using Tunable Laser Absorption Spectroscopy
Varghese, Philip; University of Texas at Austin, Austin, TX 78712
CTS 9215080 A000; 09/01/1992; $90,000; 12 mo.

Mechanistic Studies of Combustion Synthesis
Varma, Arvind; University of Notre Dame, Notre Dame, IN 46556
CTS 9214009 A000; 09/15/1992; $75,147; 12 mo.

Non-Intrusive Laser Diagnostics Applied to Strained Hydrogen-Air Diffusion Flames
Wehrmeyer, Joseph; University of Missouri-Columbia, Columbia, MO 65211
CTS 9210988 A000; 09/01/1992; $99,779; 36 mo.

Asymptotic Analysis of Flame Structure with Real Chemistry
Williams, Forman; University of California-San Diego, San Diego, CA 92093
CTS 8918527 A001; 11/01/1989; $37,482; 0 mo.

Asymptotic Analyses of Flames with Real Chemistry
Williams, Forman; University of California-San Diego, San Diego, CA 92093
CTS 9214888 A000; 11/01/1992; $257,806; 36 mo.

Combustion Synthesis of Fullerenes
Wright, John; TDA Research Inc., Wheat Ridge, CO 80033
III 9160461 A000; 01/01/1992; $50,000; 6 mo.

Mechanism of Carbon Oxidation Reactions
Yang, Ralph; SUNY at Buffalo, Buffalo, NY 14260
CTS 9120452 A000; 02/01/1992; $160,729; 36 mo.

Thermal Transport and Processing

Metal Matrix Composite Heat Sink with Improved Transmission
Arya, Prakash; Materials and Electrochemical Research Corporation, Tucson, AZ 85706
III 9161374 A000; 02/01/1992; $50,000; 6 mo.

Presidential Young Investigator Award: Engine Heat Transfer and Combustion Studies
Assanis, Dennis; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 8858310 A004; 07/01/1988; $62,500; 12 mo.

Presidential Young Investigator Award: Bioheat Transfer
Baish, James; Bucknell University, Lewisburg, PA 17837
CTS 9057412 A002; 07/01/1990; $25,000; 12 mo.

NSF Young Investigator
Ball, Kenneth; University of Texas at Austin, Austin, TX 78712
CTS 9258006 A000; 09/01/1992; $25,000; 12 mo.

Three-Phase Cooling of High Flux Electronics
Bar-Cohen, Avram; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9217732 A000; 08/01/1992; $13,000; 7 mo.

REU Supplement: Mesoscale Heat Exchangers
Bau, Haim; Zemel, Jay; University of Pennsylvania, Philadelphia, PA 19104
CTS 9012904 A003; 09/15/1990; $80,000; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $40,000

U.S.-F.S.U. Workshop on Inverse Problems in Heat Transfer; June, 1992; East Lansing, Michigan
Beck, James; Michigan State University, East Lansing, MI 48824
INT 9113514 A000; 05/01/1992; $18,000; 3 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,000

Presidential Young Investigator Award: New Solidification Techniques in Manufacturing of Materials
Beckermann, Christoph; University of Iowa, Iowa City, IA 52242
CTS 8957149 A004; 07/01/1989; $62,500; 12 mo.

Enhanced Surfaces for Cooling High-Flux Microelectronic Components
Bhavnani, Sushil; Auburn University, Auburn, AL 36849
CTS 9209581 A000; 09/01/1992; $94,250; 36 mo.

Silica Fouling Fundamentals and Control by Magnetic and Ozonation Methods
Chan, Shih; University of Wisconsin-Milwaukee, Milwaukee, WI 53201
CTS 9117230 A000; 04/01/1992; $280,589; 36 mo.

RUI: A Study of Number of Ribbed Walls and Channel Aspect Ration on Heat and Friction Characteristics in Cooling Channel Flows Applied to Turbine Blades, Heat Exchangers, Nuclear ..
Chandra, Pankaj; McNeese State University, Lake Charles, LA 70609
CTS 9116489 A000; 04/15/1992; $49,815; 24 mo.

Solidification of Binary Mixtures in a Porous Media in the Presence of Double Diffusive Convection
Chellaiah, S.; Florida International University, Miami, FL 33199
CTS 9246311 A000; 03/15/1992; $15,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $11,250

Development of an Efficient and Intense Cooling Technique Using Electrostatically Charged Sprays
Choi, Kyung-Jin; Drexel University, Philadelphia, PA 19104
CTS 9296268 A000; 08/01/1992; $132,300; 24 mo.

Fundamental Deposition Processes in Optical Fiber Manufacturing
Daily, John; University of Colorado at Boulder, Boulder, CO 80309
CTS 9005765 A001; 08/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Thermal Stresses During Freezing of Biomaterials
Datta, Ashim; Mukherjee, Yu; Cornell University, Ithaca, NY 14853
CTS 9122548 A000; 09/15/1992; $43,585; 12 mo.

Engineering Foundation Conferences on Pool and External Flow Boiling, March 23-27, 1992, in Santa Barbara, California
Dhir, Vijay; Bergles, Arthur; United Engineering Trustees Inc., New York, NY 10017
CTS 9115472 A000; 05/01/1992; $12,500; 12 mo.

RUI: Theoretical and Experimental Investigation of Viscous Flow and Convective Heat Transfer in Helicoidal Heat Exchangers (REU Supplement)
Ebadian, M.; Florida International University, Miami, FL 33199
CTS 9017732 A002; 02/01/1991; $15,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $11,250

An Assessment of U.S.-German Exchange Programs in Mechanical Engineering Workshop to be held March 1992 in New Orleans, Louisiana
Fletcher, Leroy; Texas A&M University Research Foundation, College Station, TX 77843
CTS 9211694 A000; 03/15/1992; $44,687; 12 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $5,000

Solidification Processing of Binary-Alloy Metal Matrix Composites: A Theoretical and Experimental Analysis
Garimella, Suresh; University of Wisconsin-Milwaukee, Milwaukee, WI 53201
CTS 9210612 A000; 09/01/1992; $89,987; 36 mo.

Enhancement Mechanism in the Nucleate Boiling and Convective Vaporization of Liquids on Microconfigured Surfaces
Gebhart, Benjamin; University of Pennsylvania, Philadelphia, PA 19104
CTS 9119829 A000; 07/01/1992; $276,983; 36 mo.

Presidential Young Investigator Award
Georgiadis, John; Duke University, Durham, NC 27708
CTS 9157910 A001; 07/01/1991; $62,500; 12 mo.

Transient Radiation Properties of Strongly Radiating Turbulent Flames
Gore, Jayavant; Purdue University Research Foundation, West Lafayette, IN 47907
CTS 9296149 A000; 06/01/1992; $29,700; 4 mo.

Heat Transfer in Excimer Laser Materials Processing and Micromachining
Grigoropoulos, Costas; University of California-Berkeley, Berkeley, CA 94720
CTS 9210333 A000; 09/15/1992; $232,398; 36 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $69,719

International Conference on Transport Phenomena in Processing, March 22-26, 1992
Guceri, Selcuk; University of Delaware, Newark, DE 19716
DDM 9114322 A000; 02/15/1992; $15,000; 12 mo.
Jointly Funded with MANUFACTURING MACHINES AND EQUIP $5,000

Research Initiation Award: Visualization of Surface Temperature Distributions in Incipient Boiling Using Liquid Crystal Thermography
Hollingsworth, Donald; University of Houston, Houston, TX 77204
CTS 9110771 A001; 06/01/1991; $4,938; 0 mo.

Presidential Young Investigator Award: Convective Transport Complex Flows
Hunt, Melany; California Institute of Technology, Pasadena, CA 91125
CTS 8958347 A005; 09/01/1989; $45,420; 12 mo.
CTS 8958347 A006; 09/01/1989; $25,000; 12 mo.

Engineering Research Equipment: High Temperature Vacuum Furnace
Janowski, Gregg; Thompson, Raymond; Patterson, Burton; Andrews, J.; University of Alabama at Birmingham, Birmingham, AL 35294
CTS 9212495 A000; 09/01/1992; $25,000; 12 mo.

Measurement of Radiation Intensity Distributions in a Participating Medium
Jones, Peter; Auburn University, Auburn, AL 36849
CTS 9209926 A000; 09/01/1992; $89,845; 36 mo.

Desorption of Soil Contaminants During Steam Cleaning
Kaviany, Massoud; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9115746 A001; 09/15/1991; $3,657; 0 mo.
CTS 9115746 A002; 09/15/1991; $86,798; 12 mo.

The Effect of Nonplanar Oscillations upon the Onset of Rayleigh-Benard Convection and Other Fluid Instabilities
Kelly, Robert; University of California-Los Angeles, Los Angeles, CA 90024
CTS 9123553 A000; 07/15/1992; $179,368; 24 mo.

Low-Prandtl Number Buoyancy and Surface Tension Induced Convection With/Without Solidification and Mushy Zone
Koster, Jean; University of Colorado at Boulder, Boulder, CO 80309
CTS 9114775 A000; 03/15/1992; $203,028; 36 mo.

A Self-Stabilizing Crystal Pulling Process
Kou, Sindo; University of Wisconsin-Madison, Madison, WI 53706
CTS 9202637 A000; 09/15/1992; $188,400; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $28,000

Microscale Thermal Radiation Properties of Metal Films
Kumar, Sunil; Polytechnic University, Brooklyn, NY 11201
CTS 9210727 A000; 09/01/1992; $90,000; 36 mo.

Presidential Young Investigator Award: Thermal Aspects of Grinding
Lavine, Adrienne; University of California-Los Angeles, Los Angeles, CA 90024
DDM 8857677 A006; 08/01/1988; $25,000; 12 mo.

Presidential Young Investigator Award: Exploratory Studies in Heat and Mass Transfer
Lienhard, John; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 8858288 A005; 06/15/1988; $62,500; 12 mo.

An Experimental Investigation of New Parameters for Predicting Turbulent Heat Transfer
Maciejewski, Paul; University of Pittsburgh, Pittsburgh, PA 15260
CTS 9210215 A000; 09/01/1992; $99,909; 36 mo.

Engineering Research Equipment Grant: Atomic Force Microscope
Majumdar, Arunava; University of California-Santa Barbara, Santa Barbara, CA 93106
CTS 9212344 A000; 09/01/1992; $60,000; 12 mo.

Heat Generation and Transport in Submicron Semiconductor Devices
Majumdar, Arunava; University of California-Santa Barbara, Santa Barbara, CA 93106
CTS 9215818 A000; 10/15/1992; $285,372; 36 mo.

NSF Young Investigator
Majumdar, Arunava; University of California-Santa Barbara, Santa Barbara, CA 93106
CTS 9257536 A000; 10/01/1992; $25,000; 12 mo.

Heat Transfer Enhancement by Vortex Generators in Compact Channels
Manglik, Raj; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 9209339 A000; 09/01/1992; $99,967; 36 mo.

Presidential Young Investigator Awards
Miaoulis, Ioannis; Tufts University, Medford, MA 02155
CTS 9157278 A001; 10/01/1991; $62,500; 12 mo.

Engineering Research Equipment Grant: Laser Processing of Ceramics, Composites and Metals
Modest, Michael; Pennsylvania State Univ.-University Park, University Park, PA 16801
CTS 9213100 A000; 08/15/1992; $62,135; 12 mo.

A Study of a Solar-Thermochemical Energy Transport System for the Pacific Northwest
Murray, Jean; Portland State University, Portland, OR 97207
CTS 9010338 A001; 07/01/1990; $10,430; 9 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,823

Experimental Investigation at Paul Scherrer Institute of a Solar-Receiver/Reactor System for High-Temperature Material Processes
Murray, Jean; Portland State University, Portland, OR 97207
CTS 9216179 A000; 09/15/1992; $12,500; 6 mo.

Control of Turbulent Boundary Layer Heat Transfer Using the Lorentz Force
Nosenchuck, Daniel; Brown, Garry; Princeton University, Princeton, NJ 08544
CTS 9223119 A000; 09/01/1992; $49,983; 5 mo.

REU Supplement: Small Grants for Exploratory Research: EHD Heat Transfer Augmentation of Environmentally Safe Refrigerants
Ohadi, Michael; University of Maryland-College Park, College Park, MD 20742
CTS 9117068 A002; 06/15/1991; $5,075; 0 mo.

Presidential Young Investigator Award: Experimental Investigations of Convective Heat Transfer in Complex Internal Flows
Ortega, Alfonso; University of Arizona, Tucson, AZ 85721
CTS 9057465 A002; 08/01/1990; $62,500; 12 mo.

Thermal Properties of Vertical-Cavity Surface-Emitting Diode Lasers and Arrays
Osinski, Marek; University of New Mexico, Albuquerque, NM 87131
CTS 9108297 A000; 03/15/1992; $59,489; 12 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $29,744
CTS 9108297 A001; 03/15/1992; $30,272; 0 mo.
Jointly Funded with POLAND $30,272

Presidential Young Investigator Award: Fundamental Mechanisms of Heat and Mass Transport with Phase Interfaces
Peterson, Per; University of California-Berkeley, Berkeley, CA 94720
CTS 9057258 A002; 08/01/1990; $62,500; 12 mo.

Research Initiation Award: A Fundamental Investigation of the Freezing Process in Food Materials
Scott, Elaine; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
CTS 9296269 A000; 09/01/1992; $34,800; 14 mo.

Computational Methods in Radiative Heat Transfer
Siewert, Charles; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
ECS 9100116 A000; 04/01/1992; $50,000; 12 mo.

Fundamental Studies of Controlled Microstructure Development by the Self-Propagating High-Temperature Synthesis Process
Stangle, Gregory; McCauley, James; Spriggs, Richard; Alfred University-NY State College of Ceramics, Alfred, NY 14802
CTS 9114253 A000; 02/15/1992; $84,343; 12 mo.
Jointly Funded with CERAMICS $12,049

Investigation of Convective Heat Transfer Properties of Electrorheological Fluids
Stevens, James; Mississippi State University, Mississippi State, MS 39762
CTS 9212099 A000; 09/01/1992; $100,000; 36 mo.

High Efficiency Waste Heat/Solar Power System Utilizing Regenerative Zeolite Cycle
Tchernev, Dimiter; Zeopower Company, Natick, MA 01760
III 9160143 A000; 02/01/1992; $50,000; 6 mo.

Energy Deposition and Transport in Laser-Material Interactions
Tien, Chang-Lin; University of California-Berkeley, Berkeley, CA 94720
CTS 9215617 A000; 09/15/1992; $178,570; 36 mo.

Heat Transfer During Thermal Acoustic Oscillations in Cryogenic Systems
Timmerhaus, Klaus; University of Colorado at Boulder, Boulder, CO 80309
CTS 9115040 A000; 05/01/1992; $59,862; 12 mo.

Investigation of the Heat Exchange in a Regenerative Heat Exchanger for an Orifice Pulse-Tube Refrigerator
Timmerhaus, Klaus; University of Colorado at Boulder, Boulder, CO 80309
CTS 9116645 A000; 04/01/1992; $51,129; 12 mo.

Engineering Research Equipment Grant: A Request for Thermal Radiation Measurement Equipment
Torrance, Kenneth; Greenberg, Donald; Cornell University - Endowed, Ithaca, NY 14853
CTS 9213183 A000; 09/01/1992; $165,484; 12 mo.

Evaporation and Stress in a Small Constrained System
Wayner, Peter; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
CTS 9123006 A000; 08/01/1992; $306,572; 36 mo.

Heat Transfer in Turbulent Boundary Layers with Local Periodic Unsteadiness
Wroblewski, Donald; Boston University, Boston, MA 02215
CTS 9211282 A000; 09/01/1992; $89,990; 36 mo.

Inverse and Design Thermomechanical Problems in Solidification Processing
Zabaras, Nicholas; Cornell University - Endowed, Ithaca, NY 14853
CTS 9115438 A000; 05/15/1992; $159,304; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $39,826

The Effect of Pulsating Flow on the Cooling and Drying Effectiveness of Impinging Jets: REU Supplement

Zumbrunnen, David; Clemson University, Clemson, SC 29634

CTS 8918154 A002; 04/15/1990; $3,800; 0 mo.

DESIGN AND MANUFACTURING SYSTEMS

Cross-Directorate Programs

Manufacturing Strategies for Multi-Product, Multi-Stage Production/Inventory Systems
Altiok, Tayfur; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
DDM 9014868 A001; 06/01/1991; $12,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $12,500

Research Initiation: Unconstrained Optimization in Discrete Event Simulation
Andradottir, Sigrun; University of Wisconsin-Madison, Madison, WI 53706
DDM 9210679 A000; 08/15/1992; $45,330; 12 mo.

An Integrated System for Spline-Based Cam Design and Manufacturing
Ault, Holly; Worcester Polytechnic Institute, Worcester, MA 01609
DDM 9109378 A001; 07/15/1991; $4,063; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,063

Research Initiation Award: Design and Manufacture of Cams Using Rational Curves
Ault, Holly; Worcester Polytechnic Institute, Worcester, MA 01609
DDM 9211020 A000; 07/15/1992; $33,970; 12 mo.

Rescheduling Disrupted Production Systems
Bean, James; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9018515 A001; 04/15/1991; $12,500; 0 mo.
Jointly Funded with OPERATIONS RESEARCH and HUMAN RESOURCES DEVELOPMENT $4,687

Research Planning Grant: Inference Techniques for Estimating the Variance of Means of Simulation Output Data
Bengu, Golgen; The Foundation at NJIT, Newark, NJ 07102
DDM 9214481 A000; 08/15/1992; $18,000; 18 mo.

Presidential Young Investigator Award: A Graphical Characterization of Diverse Iterative Design Optimization Processes
Burns, Scott; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 8957410 A005; 09/01/1989; $16,800; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $9,800

Computer-Assisted Formulation of Computer Architecture Designs
Carothers, Jo Dale; University of Arizona, Tucson, AZ 85721
DDM 9111479 A000; 11/15/1991; $18,000; 18 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $18,000

Workshop on Apparel Manufacturing Improvement; March 24, 1992; Miami, FL
Chen, Chin-Sheng; Swift, Fred; Racine, Raymond; Nunez, German; Florida International University, Miami, FL 33199
DDM 9206375 A000; 03/15/1992; $13,000; 12 mo.

Research Planning Grant: Conformability of Fiber Preform Architectures
Chen, Julie; Boston University, Boston, MA 02215
DDM 9209982 A000; 09/01/1992; $18,000; 18 mo.

Advances in Design of Automated Wire and Die Bonding Machinery in Microelectronic Manufacturing
Cohen, Ira; Ayyaswamy, Portonovo; University of Pennsylvania, Philadelphia, PA 19104
DDM 9000573 A003; 06/01/1990; $10,000; 9 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

A Framework for an Integrated Decision Support System for Manufacturing Process Improvement
Cook, Deborah; Texas A&M University Research Foundation, College Station, TX 77843
DDM 9111291 A000; 11/15/1991; $18,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $18,000

Small Grants for Exploratory Research: Synthesis of Design for (X) Methodologies
Davis, Robert; Clemson University, Clemson, SC 29634
DDM 9116112 A001; 08/01/1991; $4,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,000

Optimum Configurations of Three-Dimensional Mechanical Components with Behavior and Geometry Constraints
Diaz, Alejandro; Michigan State University, East Lansing, MI 48824
DDM 9201882 A000; 04/01/1992; $97,350; 24 mo.

Statistical Issues in Geometric Tolerance Verification Using Coordinate Measuring Machines
Dowling, Mary; Griffin, Paul; Zhou, Chen; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9203054 A000; 06/15/1992; $147,318; 24 mo.

Career Advancement Award: An Investigation into Methods to Support Cooperative Design
Gaucas, Dale Ellen; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 9209250 A000; 08/15/1992; $30,000; 12 mo.

Small Grants for Exploratory Research: Dynamic Abstraction Mechanisms for Simulation Environments
Haddock, Jorge; Spooner, David; Rensselaer Polytechnic Institute, Troy, NY 121803590
DDM 9200517 A000; 08/01/1992; $32,199; 12 mo.

Research Initiation: Capacitated Network Design; Solution Approaches Based on Integer and Linear Programming
Hall, Leslie; Princeton University, Princeton, NJ 08544
DDM 9210979 A000; 08/01/1992; $30,000; 12 mo.

Closed-Loop Control of Sheet Forming Processes
Hardt, David; Boyce, Mary; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9202362 A000; 08/01/1992; $100,001; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $66,667

Presidential Young Investigator Award: Optimization and Design Sensitivity Analysis
Hou, Gene; Old Dominion University Research Foundation, Norfolk, VA 23508-0369
DDM 8657917 A007; 07/15/1987; $5,000; 0 mo.

VPW: Management of Manufacturing Knowledge for a Concurrent Engineering Paradigm (Engineering)
Irizarry-Gaskins, Vilma; Pennsylvania State Univ.-University Park, University Park, PA 16801
HRD 9250109 A000; 08/15/1992; $45,986; 9 mo.
Jointly Funded with COMPUTER INTEGRATED ENGINEERNG $15,000

Research Initiation Award: A Decision Analysis Approach to Some Important Topics in Quality Assurance
Irony, Telba; George Washington University, Washington, DC 20052
DDM 9209344 A000; 08/01/1992; $30,585; 12 mo.

Numerically Controlled Machining of Sculptured Surfaces
Jerard, Robert; Drysdale, Robert; University of New Hampshire-Durham, Durham, NH 03824
DDM 9015851 A001; 07/15/1991; $9,425; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,712

Laser Beam - Splitting and Materials Processing
Kannatey-Asibu, Elijah; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9114148 A001; 09/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Presidential Young Investigator Award: Thermal Aspects of Grinding
Lavine, Adrienne; University of California-Los Angeles, Los Angeles, CA 90024
DDM 8857677 A005; 08/01/1988; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Research Initiation: Novel Processing of Tape-Cast Ceramic Layers
Lewis, Jennifer; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 9211554 A000; 06/15/1992; $100,000; 36 mo.

Practical Scheduling of Manufacturing Systems
Luh, Peter; Pattipati, Krishna; Hoitomt, Debra; University of Connecticut, Storrs, CT 06268
DDM 9119074 A000; 05/15/1992; $89,997; 12 mo.

Engineering Faculty Internship: Characterization of Process Parameters for High-Speed Heat-Set Web Offset Lithography
Modi, Vijay; Columbia University, New York, NY 10027
DDM 9113801 A001; 07/15/1991; $10,000; 6 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Continuous Curing of Filament Wound Structrues Using Infrared Heating
Moon, Tess; University of Texas at Austin, Austin, TX 78712
DDM 9109592 A000; 12/01/1991; $60,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $60,000

A Product Modeler for Assembly
Nnaji, Bartholomew; Popplestone, Robin; Liu, Yanxi; Kang, Tzong-Shyan; University of Massachusetts-Amherst, Amherst, MA 01003
DDM 9203986 A000; 06/01/1992; $100,000; 12 mo.

RUI: Advanced Manufacturing Research for Semiconductor Devices, Materials and Processes
O'Clock, George; Mankato State University, Mankato, MN 56001
DDM 9111686 A000; 06/01/1992; $53,843; 24 mo.

Engineering Faculty Intership: System Information Integration
Occena, Luis; University of Missouri-Columbia, Columbia, MO 65211
DDM 9214719 A000; 07/01/1992; $7,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,000

Engineering Faculty Internship: Computer Interated Statistical Process Control System for Surface Mount Technology (SMT) Circuit Board Production
Okogbaa, O. Geoffrey; Borkes, Tom; University of South Florida, Tampa, FL 33620
DDM 9113846 A002; 07/15/1991; $10,281; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $7,640

Generalized Layout Problems in Structural Optimization
Papalambros, Panos; Kikuchi, Noboru; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 8917430 A003; 04/01/1990; $5,000; 6 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Continuous Czochralski Growth of Silicon Single Crystals
Prasad, Vishwanath; Koziol, Jurek; Columbia University, New York, NY 10027
DDM 9114593 A001; 09/01/1991; $9,250; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $9,250

The Effect of Porosity on Localization in Forging Processes
Ramesh, Kaliat; Ponte-Castaneda, Pedro; Johns Hopkins University, Baltimore, MD 21218
DDM 9012230 A002; 09/01/1990; $17,375; 3 mo.

Research Initiation: Developing Heuristics for Rank Reduction Algorithms for Large-Scale Markov Chains
Rieders, Maria; Northwestern University, Evanston, IL 60208
DDM 9211043 A000; 08/15/1992; $33,768; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $16,884

Fundamental Study on Ductile Fracture in Metal Forming
Samanta, Shyam; University of Nevada-Reno, Reno, NV 89557
DDM 9096203 A003; 04/01/1990; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Automated Experimentation and Analysis for Robust Product Design
Sanchez, Susan; University of Arizona, Tucson, AZ 85721
DDM 9110573 A000; 01/01/1992; $59,996; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $59,996

Research Planning Grant: Process Planning Using an Integrated Neural Network and Expert System Approach
Smith, Alice; University of Pittsburgh, Pittsburgh, PA 15260
DDM 9209424 A000; 09/01/1992; $18,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $9,000

Enhancing the Development of Product Requirements
Stauffer, Larry; Morris, Linda; University of Idaho, Moscow, ID 83843
DDM 9114752 A001; 09/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Presidential Young Investigator Award: Design Optimization and Decision Analysis
Thurston, Deborah; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 8957420 A003; 09/01/1989; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Research Planning Grant: Toward Simultaneous Engineering in the Toy Industry
Trappey, Amy J.C.; Iowa State University, Ames, IA 50011
DDM 9209153 A000; 08/15/1992; $18,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $9,000

Research Initiaiton: Scheduling Complex Dynamic Job Shops
Uzsoy, Reha; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9107591 A001; 08/01/1991; $3,096; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,096

Presidential Young Investigator Award: Computer Vision Inspection of Polygonal Profiles
Ventura, Jose; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9057066 A002; 08/15/1990; $6,250; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $6,250

Engineering Faculty Internship: Intelligent Machine Tool Monitoring: A Neural Network Approach
Wang, Hsu-Pin; Chen, F. Frank; University of Iowa, Iowa City, IA 52242
DDM 9113770 A001; 08/01/1991; $3,762; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,762

Optimization and Feedback Control in Sheet Metal Forming - The Intelligent Stamping Die
Weinmann, Klaus; Kashani, Reza; Majlessi, Seyed; Klamecki, Barney; Ramalingam, Subbiah; Michigan Technological University, Houghton, MI 49931
DDM 9022550 A002; 08/15/1991; $19,232; 0 mo.

Heuristics for Stochastic Scheduling and the Control of Queueing Networks
Weiss, Gideon; Georgia Tech Research Corporation - GA Tech Research Institute, Atlanta, GA 30332
DDM 8914863 A003; 03/01/1990; $105,894; 12 mo.
Jointly Funded with PRODUCTION SYSTEMS and HUMAN RESOURCES DEVELOPMENT $10,800

Research Initiation: Fractal-Based Tolerance Technology for Engineering Design and Manufacturing
Wood, Kristin; University of Texas at Austin, Austin, TX 78712
DDM 9111372 A001; 09/01/1991; $10,000; 0 mo.

Single-Server Multiple-Queue Systems
Wortman, Martin; Disney, Ralph; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
DDM 8913658 A003; 03/15/1990; $4,110; 0 mo.

Research Initiation: Global Optimization Algorithms for Engineering Design
Zabinsky, Zelda; University of Washington, Seattle, WA 98195
DDM 9211001 A000; 07/15/1992; $30,309; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $15,000

Design and Computer-Integrated Engineering Program

Computer Integrated Engineering

Engineering Faculty Internship: Concurrent Engineering in the Wire and Cable Industry
Albin, Susan; Dover, Thomas; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
DDM 9113827 A001; 07/15/1991; $1,430; 0 mo.

An Integrated System for Spline-Based Cam Design and Manufacturing
Ault, Holly; Worcester Polytechnic Institute, Worcester, MA 01609
DDM 9109378 A001; 07/15/1991; $4,063; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $4,063

Mathematical Sciences: On-Site Research to Advance Industrial Quality and Productivity
Bailar, Barbara; American Statistical Association, Alexandria, VA 22314-3402
DMS 9223559 A000; 10/01/1992; $85,000; 12 mo.

Concurrent Engineering Protocols and Project Management
Bailey, James; Arizona State University, Tempe, AZ 85287
DDM 9215514 A000; 09/01/1992; $50,900; 12 mo.

Presidential Young Investigator Award: Interactive Computer Graphics
Barfield, Woodrow; University of Washington, Seattle, WA 98195
DDM 8857851 A007; 10/01/1988; $72,800; 12 mo.

Geometry Processing and Nonuniform Rational B-Splines (NURBS)
Barnhill, Robert; Farin, Gerald; Arizona State University, Tempe, AZ 85287
DDM 9123527 A000; 09/01/1992; $120,000; 36 mo.

STRATMAN: A Generic Architecture for Intelligent Networked Colocation in Concurrent Engineering
Bowen, J.A.; Bahler, Dennis; Franzon, Paul; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 9215755 A000; 10/01/1992; $599,986; 36 mo.
Jointly Funded with DEFENSE and SPECIAL PROGRAMS $599,986

Presidential Young Investigator Award: A Graphical Characterization of Diverse Iterative Design Optimization Processes
Burns, Scott; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 8957410 A005; 09/01/1989; $16,800; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $9,800
DDM 8957410 A006; 09/01/1989; $62,500; 12 mo.

Research Initiation: Point-and-Direct Strategic Control in Manufacturing
Cannon, David; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9209583 A000; 08/15/1992; $39,800; 12 mo.
Jointly Funded with PRODUCTION SYSTEMS $10,000

Optimum Configurations of Three-Dimensional Mechanical Components with Behavior and Geometry Constraints
Diaz, Alejandro; Michigan State University, East Lansing, MI 48824
DDM 9201882 A000; 04/01/1992; $97,350; 24 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $48,675

Statistical Issues in Geometric Tolerance Verification Using Coordinate Measuring Machines
Dowling, Mary; Griffin, Paul; Zhou, Chen; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9203054 A000; 06/15/1992; $147,318; 24 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $73,659

Semantic Based Models and Translation of Engineering Designs
Eastman, Charles; Bond, Alan; University of California-Los Angeles, Los Angeles, CA 90024
DDM 8915665 A002; 04/15/1990; $85,876; 12 mo.

Intelligent Material Handling Systems: Design of Integrated Stockless and Distribution System for the Healthcare Industry
Egbelu, Pius; Harmonosky, Catherine; Medeiros, Deborah; Sommer, H. Joseph; O'Brien, William; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9114149 A000; 11/15/1991; $173,389; 12 mo.

Variable-Complexity Design Strategies for Integrated Multidisciplinary Optimization
Haftka, Raphael; Grossman, Bernard; Mason, William; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
DDM 9008451 A001; 04/01/1991; $49,903; 12 mo.

VPW: Management of Manufacturing Knowledge for a Concurrent Engineering Paradigm (Engineering)
Irizarry-Gaskins, Vilma; Pennsylvania State Univ.-University Park, University Park, PA 16801
HRD 9250109 A000; 08/15/1992; $45,986; 9 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $7,500

Numerically Controlled Machining of Sculptured Surfaces
Jerard, Robert; Drysdale, Robert; University of New Hampshire-Durham, Durham, NH 03824
DDM 9015851 A001; 07/15/1991; $9,425; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $4,712
DDM 9015851 A002; 07/15/1991; $46,502; 12 mo.

Joint US/German Conference on New Directions for Operations Research in Manufacturing; June 25-26, 1992; Hagen, Germany
Jones, Albert; Gulledge, Thomas; National Institute of Standards and Technology, Gaithersburg, MD 20899
DDM 9217855 A000; 08/01/1992; $10,000; 6 mo.

Advanced Computational Techniques for Boundary Element Analysis
Kane, James; Clarkson University, Potsdam, NY 13676
DDM 9019852 A001; 07/15/1992; $56,390; 12 mo.
Jointly Funded with NEW TECHNOLOGIES $25,000

Advanced Computational Techniques in Boundary Element Analysis
Keyes, David; Yale University, New Haven, CT 06520
DDM 9020733 A001; 07/15/1991; $48,260; 12 mo.
Jointly Funded with NEW TECHNOLOGIES $25,000

Research Initiation: Form Feature Recognition Using Convex Decomposition
Kim, Yong Se; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 9210214 A000; 09/01/1992; $29,229; 12 mo.

Mathematical Sciences: Combinatorics, Complexity and Convexity
Klee, Victor; University of Washington, Seattle, WA 98195
DMS 9013303 A001; 03/15/1991; $47,822; 0 mo.
Jointly Funded with THEORY OF COMPUTING and GEOMETRIC ANALYSIS $11,000

Concurrent Prediction of Technology and Human Skills Requirements for Advanced Manufacturing Technologies
Koubek, Richard; Salvendy, Gavriel; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9215703 A000; 09/15/1992; $94,359; 12 mo.

Research Initiation: Development of Design Methodologies and Performance Standards for Application of Fuzzy Linguistic Control in Manufacturing
Langari, Reza; Texas A&M University Research Foundation, College Station, TX 77843
DDM 9211540 A000; 08/15/1992; $34,446; 12 mo.

Studying Sweeps and Swept Volumes Via Differential Equation Approach
Leu, Ming; Blackmore, Denis; The Foundation at NJIT, Newark, NJ 07102
DDM 9114385 A001; 09/01/1991; $60,000; 12 mo.

Research Initiation Award: A Two-Level Hierarchical Control Model for the Dynamic Operation of Manufacturing Cell Systems
Lin, Li; SUNY at Buffalo, Amherst, NY 14228
DDM 9209452 A000; 09/01/1992; $33,012; 12 mo.

Research Initiation: Dynamic Analysis of Mechanical Assemblies
Liou, Frank; University of Missouri-Rolla, Rolla, MO 65401
DDM 9210839 A000; 09/01/1992; $28,902; 12 mo.

Modeling and Analysis of Global Vision for Operating Multiple Free-Ranging AGVs on the Factory Floor
Luo, Ren; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 9202792 A000; 10/01/1992; $13,509; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $573

Presidential Young Investigator Award: Knowledge Representation for Structural Design
Maher, Mary Lou; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 8657298 A006; 07/01/1987; $25,000; 12 mo.

Research Initiation: A Qualitative Model for Geometry and Structure, and Its Applications to an Integrated Design, Manufacturing Planning and Inspection Environment
Marefat, Michael; University of Arizona, Tucson, AZ 85721
DDM 9210018 A000; 09/01/1992; $38,900; 12 mo.

European, CIM Research Site Visitations to Access Potential for ESPRIT/NSF Research Collaboration
Moodie, Colin; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9123984 A001; 01/01/1992; $4,470; 0 mo.
Jointly Funded with ENGINEERING DESIGN $1,500

Generation and Evaluation of Machining Alternatives
Nau, Dana; Zhang, Guangming; University of Maryland-College Park, College Park, MD 20742
DDM 9201779 A000; 09/15/1992; $150,000; 36 mo.

Models for the Design of Engineering Tasks Integration
Nof, Shimon; Fortes, Jose; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9216655 A000; 09/15/1992; $38,300; 12 mo.

Strategic Manufacturing Initiative: Constraint Nets for Life Cycle Engineering
O'Grady, Peter; Bahler, Dennis; Bowen, J.A.; Young, Robert; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 8914200 A003; 10/01/1989; $100,000; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $100,000

Engineering Faculty Intership: System Information Integration
Occena, Luis; University of Missouri-Columbia, Columbia, MO 65211
DDM 9214719 A000; 07/01/1992; $7,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $7,000

NSF Young Investigator: Computer-Aided Automation of Design and Manufacturing Processes
Oliver, James; Iowa State University, Ames, IA 50011
DDM 9258114 A000; 09/01/1992; $25,000; 12 mo.

Generalized Layout Problems in Structural Optimization
Papalambros, Panos; Kikuchi, Noboru; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 8917430 A003; 04/01/1990; $5,000; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000

Towards a New Generation of Robust CAD/CAM Systems
Patrikalakis, Nicholas; Wolter, Franz; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9215411 A000; 09/15/1992; $65,000; 12 mo.

Presidential Young Investigator Award: High-Dimensional Paradigm in Geometric Design
Pegna, Joseph; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 9057059 A002; 08/01/1990; $25,000; 12 mo.

Designing with Tolerances
Pollock, Stephen; Lee, Woo-Jong; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 8903029 A004; 12/15/1989; $137,376; 12 mo.

Engineering Faculty Internship: Production Optimization of Commercial Aircraft Fuselage Frames and Doors
Rajagopalan, Ramesh; Grady, Arthur; Mercer University, Macon, GA 31207
DDM 9213701 A000; 07/01/1992; $6,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $6,000

Presidential Young Investigator Award: Interactive Spatial Mechanism Synthesis
Reinholtz, Charles; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
DDM 8657828 A006; 08/01/1987; $37,500; 0 mo.

Solid Modeling and Its Applications
Requicha, Aristides A.; University of Southern California, Los Angeles, CA 90089
DDM 8715404 A004; 02/15/1988; $142,031; 12 mo.

STRATMAN: Automatic Design and Assembly of Fixtures Using Modular Components
Requicha, Aristides A.; Bekey, George; Goldberg, Kenneth; University of Southern California, Los Angeles, CA 90089
DDM 9215362 A000; 09/15/1992; $344,424; 36 mo.
Jointly Funded with SPECIAL PROGRAMS $344,424

Mathematical Sciences: Statistical Strategies for Complex Computer Models
Sacks, Jerome; National Institute of Statistical Sciences, Research Triangle Pk, NC 27709-4162
DMS 9121554 A001; 09/01/1991; $110,000; 12 mo.
Jointly Funded with NEW TECHNOLOGIES $25,000

Engineering Faculty Internship: Reverse Engineering Representations of Shape
Schunck, Brian; Wu, Charles; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9213693 A000; 07/15/1992; $12,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $12,000

Presidential Young Investigator Award: Loop Detection in Surface Patch Intersections
Sederberg, Thomas; Brigham Young University, Provo, UT 84602
DDM 8657057 A005; 08/01/1987; $10,000; 0 mo.

Design and Operation of High Performance Chemical Processes
Seider, Warren; University of Pennsylvania, Philadelphia, PA 19104
DDM 9114080 A001; 08/15/1991; $90,000; 12 mo.
Jointly Funded with PROCESS AND REACTION ENGINEERING $20,000

Development of Techniques for Mapping Design Features to Manufacturing Features via Meta Knowledge Base
Shah, Jami; Arizona State University, Tempe, AZ 85287
DDM 9114696 A001; 10/01/1991; $10,203; 0 mo.

Research Planning Grant: Process Planning Using an Integrated Neural Network and Expert System Approach
Smith, Alice; University of Pittsburgh, Pittsburgh, PA 15260
DDM 9209424 A000; 09/01/1992; $18,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $9,000

Strategies for Using Advanced Computer Architectures in Designing Complex Chemical Processes
Stadtherr, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 9024946 A001; 07/15/1991; $50,000; 12 mo.

Comprehensive Control for Turning Centers
Stern, Elliot; Auburn University, Auburn, AL 36849
DDM 9101586 A001; 06/15/1991; $38,654; 12 mo.

Control of the Errors of Idealization in Design Computations
Szabo, Barna; Washington University, St. Louis, MO 63130
DDM 8917736 A002; 06/01/1990; $70,000; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS and COMPUTATIONAL ENGINEERING $45,000

Small Grants for Exploratory Research: Distributed Flow Control of Intelligent Pallets
Tanchoco, J.M.A.; Cipra, Raymond; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9121430 A000; 12/15/1991; $47,971; 12 mo.
Jointly Funded with ROBOTICS AND MACHINE INTELLIGE $15,000

Research Planning Grant: Toward Simultaneous Engineering in the Toy Industry
Trappey, Amy J.C.; Iowa State University, Ames, IA 50011
DDM 9209153 A000; 08/15/1992; $18,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $9,000

Computer-Aided-Engineering (CAE) for the Gas-Assisted Injection Molding Process
Turng, Lih-Sheng; Advanced CAE Technology Inc., Ithaca, NY 14850
III 9161150 A000; 01/01/1992; $49,010; 6 mo.

Collaborative Project: Research on Parallel Raycasting Engines and CAD/CAE/CAM Applications
Voelcker, Herbert; Cornell University - Endowed, Ithaca, NY 14853
MIP 9007501 A002; 09/01/1990; $231,234; 12 mo.

Research and Education in Mechanical Tolerancing and Dimensional Metrology
Voelcker, Herbert; Cornell University - Endowed, Ithaca, NY 14853
DDM 9115435 A001; 09/01/1991; $130,168; 12 mo.
Jointly Funded with EXPERIMENTAL SYSTEMS PROGRAM $30,000

Research in Solid Modeling: Boundary-to-CSG Conversion
Voelcker, Herbert; Cornell University - Endowed, Ithaca, NY 14853
DDM 9215463 A000; 09/01/1992; $89,981; 12 mo.
Jointly Funded with EXPERIMENTAL SYSTEMS PROGRAM $30,000

Tolerance Synthesis for Design and Manufacturing
Wang, Hsu-Pin; University of Iowa, Iowa City, IA 52242
DDM 9200900 A000; 09/01/1992; $43,568; 12 mo.

Improved High Resolution Displays Combining Very Large Scale Integration and Polymer Dispersed Liquid Crystal Technologies
Wu, Bao-Gang; Polytronix Inc., Richardson, TX 75081
III 9161282 A000; 01/01/1992; $49,921; 6 mo.

Development of a Modeling Studio for Intelligent Manufacturing Systems Analysis
Wysk, Richard; Disney, Ralph; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
DDM 9215655 A000; 09/01/1992; $45,000; 12 mo.

Presidential Young Investigator Award: Inverse and Design Problems in Manufacturing
Zabaras, Nicholas; Cornell University - Endowed, Ithaca, NY 14853
DDM 9157189 A001; 08/01/1991; $54,050; 12 mo.

Research Initiation: A Test Bed of Integrated Process Planning Systems
Zhang, Hong; Texas Tech University, Lubbock, TX 79409
DDM 9211657 A000; 08/01/1992; $33,134; 12 mo.

Engineering Design

Convergent Iteration in Engineering Design
Antonsson, Erik; California Institute of Technology, Pasadena, CA 91125
DDM 9201424 A000; 06/15/1992; $84,701; 12 mo.

Research Initiation Award: Design and Manufacture of Cams Using Rational Curves
Ault, Holly; Worcester Polytechnic Institute, Worcester, MA 01609
DDM 9211020 A000; 07/15/1992; $33,970; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $16,970

Design Principles and Methodology for Excavations in Geologic Media
Bieniawski, Z.; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9113241 A001; 10/01/1991; $20,000; 12 mo.

Research Initiation: A Graph-Based Representation and Language of Features for Design Innovation
Cagan, Jonathan; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9108832 A001; 09/01/1991; $29,021; 12 mo.

NSF Young Investigator: Topological Generation of Quality Designs
Cagan, Jonathan; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9258090 A000; 09/01/1992; $25,000; 12 mo.

Computer-Assisted Formulation of Computer Architecture Designs
Carothers, Jo Dale; University of Arizona, Tucson, AZ 85721
DDM 9111479 A000; 11/15/1991; $18,000; 18 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $18,000

Methods for Designing Manufacturing Systems
Chryssolouris, George; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9215430 A000; 10/01/1992; $69,955; 12 mo.

Workshop on Teaching Design Skills; Atlanta, Georgia; March 16-17, 1992
Colton, Jonathan; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9213092 A000; 03/15/1992; $5,000; 12 mo.

Engineering Faculty Internship: Direct Engineering in the Automotive Industry
Crawford, Richard; Sferro, Peter; University of Texas at Austin, Austin, TX 78712
DDM 9213684 A000; 06/15/1992; $19,973; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $19,973

Small Grants for Exploratory Research: Synthesis of Design For (X) Methodologies
Davis, Robert; Clemson University, Clemson, SC 29634
DDM 9116112 A001; 08/01/1991; $4,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $4,000

Research Initiation: Hybrid Optimizers for Topological and Multidisciplinary Decision Making in Engineering Design
Dhingra, Anoop; University of Wisconsin-Milwaukee, Milwaukee, WI 53201
DDM 9111369 A001; 09/01/1991; $30,555; 12 mo.

Research in Engineering Design: Computer-Based Models and Representations
Dixon, John; University of Massachusetts-Amherst, Amherst, MA 01003
DDM 8907267 A002; 02/01/1990; $95,000; 12 mo.

Intelligent Material Handling Systems: Behavior-Based Control for Autonomous Tending of Manufacturing Workcells
Donath, Max; Ramalingam, Subbiah; University of Minnesota-Twin Cities, Minneapolis, MN 55415
MSS 9113802 A000; 02/15/1992; $150,000; 12 mo.
Jointly Funded with ROBOTICS AND MACHINE INTELLIGE $100,000

Computer-Aided Instrument Design System
Donskoy, Boris; Digital Video Processing Inc., Rockville, MD 20850
III 9160924 A000; 02/01/1992; $50,000; 6 mo.

Research Initiation: Towards Natural Quartics in Solid Modelling
Dutta, Debasish; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9010411 A001; 07/15/1990; $10,615; 0 mo.

Small Grants for Exploratory Research: System Design Evaluation: Combining the Design Dependent Parameter Approach and Taguchi's Parameter Design Approach
Fabrycky, Wolter; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
DDM 9113081 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Presidential Young Investigator Award: Research in Design Automation
Fitzhorn, Patrick; Colorado State University, Fort Collins, CO 80523
DDM 8857696 A005; 10/01/1988; $25,000; 12 mo.

Methodologies for Optimal Design and Retrofit of Processes
Floudas, Christodoulos; Princeton University, Princeton, NJ 08544
DDM 9015573 A001; 04/01/1991; $78,236; 12 mo.

Automatic Plant Layout Design with Unequal Department Size, Fixed Shape, and Location Dependent Construction Cost
Foote, Bobbie; Pulat, Pakize; Cheung, John; University of Oklahoma-Norman Campus, Norman, OK 73019
DDM 9102993 A001; 07/01/1991; $90,000; 12 mo.

Presidential Young Investigator Award: An Environment for Automated Design Standards Usage
Garrett, James; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9096296 A003; 08/01/1990; $62,500; 12 mo.

Career Advancement Award: An Investigation into Methods to Support Cooperative Design
Gaucas, Dale Ellen; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 9209250 A000; 08/15/1992; $30,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $15,000

A Combined Geometric Reasoning/Numerical Optimization Methodology for Three Dimensional Shape Synthesis
Ghattas, Omar; University of Washington, Seattle, WA 98195
DDM 9296224 A000; 10/01/1991; $60,204; 17 mo.

Blossoming and Successive Linear Combination Algorithms: An Algorithmic Approach to Computer Aided Geometric Designs
Goldman, Ronald; William Marsh Rice University, Houston, TX 77252
CCR 9113239 A000; 09/01/1992; $146,446; 12 mo.

Presidential Young Investigator Award: Optimization and Design Sensitivity Analysis
Hou, Gene; Old Dominion University Research Foundation, Norfolk, VA 23508-0369
DDM 8657917 A007; 07/15/1987; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $5,000

Develop a Theoretical Model of Information Requirements in Concurrent Manufacturing Systems
Hsu, Cheng; Rattner, Laurie; Rensselaer Polytechnic Institute, Troy, NY 121803590
DDM 9015277 A001; 07/15/1991; $50,000; 12 mo.

Presidential Young Investigator Award: Design for Injection Molding
Ishii, Kosuke; Ohio State University Research Foundation, Columbus, OH 43210
DDM 9157212 A001; 10/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
DDM 9157212 A002; 10/01/1991; $62,500; 12 mo.

Presidential Young Investigator Award: Computer-Aided Design Interpolation Systems
Jakiela, Mark; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9058415 A002; 09/01/1990; $62,500; 12 mo.

Qualitative Motion Synthesis and Simulation Using Kinematic Building Blocks - A Computational Approach
Kota, Sridhar; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9103008 A001; 06/01/1991; $60,000; 12 mo.
Jointly Funded with DYNAMIC SYSTEMS AND CONTROL $20,000

The Fuzzy Point Syntheses of Mechanisms
Kramer, Steven; University of Toledo, Toledo, OH 43606
DDM 9202140 A000; 09/15/1992; $50,000; 12 mo.

Management of the Design Process in a Concurrent Engineering Environment
Kusiak, Andrew; University of Iowa, Iowa City, IA 52242
DDM 9215259 A000; 10/01/1992; $145,589; 24 mo.

Presidential Young Investigator Award: Knowledge Engineering/Design Theory and Methodology
Lehto, Mark; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 8957823 A004; 08/01/1989; $62,500; 12 mo.

Research Initiation: A Priori Geometric Design of an Interference Free Spatial Mechanism
Ling, Zhi-Kui; Michigan Technological University, Houghton, MI 49931
DDM 9210883 A000; 08/01/1992; $20,347; 12 mo.

Introduction of Simulation Learning and Optimization to Support Engineering Design
Lu, Stephen C-Y.; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 9114475 A000; 04/15/1991; $73,488; 12 mo.

Small Grant for Exploratory Research (SGER): Proprietary Manufacturing Technology
Lund, Robert; Dixon, J.; Boston University, Boston, MA 02215
DDM 9206405 A000; 09/15/1992; $20,000; 6 mo.

Research Equipment Grant: Rapid Prototyping Directly from a Non-Uniform Rational B-Spline Based Solid Modeling System
Luo, Ren; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 9213083 A000; 08/15/1992; $50,000; 12 mo.

Interactive Design of Single and Multi-Degree of Freedom Spatial Mechanisms
McCarthy, J. Michael; University of California-Irvine, Irvine, CA 92717
DDM 9102567 A001; 07/01/1991; $73,639; 12 mo.

Design of Hierarchical and Non-Hierarchical Systems Using Fuzzy Compromise Decision Support Problems
Mistree, Farrokh; University of Houston, Houston, TX 77204
DDM 9203120 A000; 07/15/1992; $0; 2 mo.

Designing at the Functional Level of Abstraction
Mistree, Farrokh; University of Houston, Houston, TX 77204
DDM 9216037 A000; 09/15/1992; $0; 0 mo.

Designing at the Functional Level of Abstraction
Mistree, Farrokh; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9396052 A000; 12/01/1992; $102,903; 23 mo.

Design of Hierarchical and Non-Hierarchical Systems Using Fuzzy Compromise Decision Support Problems
Mistree, Farrokh; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9396053 A000; 09/01/1992; $86,910; 9 mo.

European, CIM Research Site Visitations to Access Potential for ESPRIT/NSF Research Collaboration
Moodie, Colin; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9123984 A001; 01/01/1992; $4,470; 0 mo.
Jointly Funded with COMPUTER INTEGRATED ENGINEERNG $2,970

Engineering Faculty Internship: Design-Oriented Model for Joints in Automotive Structures
Nikolaidis, Efstratios; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
DDM 9213644 A000; 08/01/1992; $21,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $21,000

A Product Modeler for Assembly
Nnaji, Bartholomew; Popplestone, Robin; Liu, Yanxi; Kang, Tzong-Shyan; University of Massachusetts-Amherst, Amherst, MA 01003
DDM 9203986 A000; 06/01/1992; $100,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $50,000

Research Initiation: Sculptured Surface Model Synthesis
Oliver, James; Iowa State University, Ames, IA 50011
DDM 9111122 A001; 08/15/1991; $30,000; 12 mo.

General Approach for Robust Optimal Design
Parkinson, Alan; Brigham Young University, Provo, UT 84602
DDM 9114262 A000; 11/15/1991; $40,000; 18 mo.

Research Initiation: Concurrent Design Using Parametric Model Deformations
Rao, J.R. Jagannatha; University of Houston, Houston, TX 77204
DDM 9210582 A000; 08/01/1992; $29,545; 12 mo.

Presidential Young Investigator Award: Advanced Signa Processing for Detection of Knock Signals in Internal Combustion Engines
Rizzoni, Giorgio; Ohio State University Research Foundation, Columbus, OH 43210
DDM 9157211 A001; 10/01/1991; $66,325; 12 mo.

Small Grants for Exploratory Research: The Utility of Brainstorming as a Methodology for Generating Concepts in Mechanical Design
Robie, Bruce; Case Western Reserve University, Cleveland, OH 44106
DDM 9121559 A000; 07/01/1992; $19,434; 12 mo.

Engineering Research Equipment Grant: Development of Packaging Design Support Environment
Rozenblit, Jerzy; Cangellaris, Andreas; University of Arizona, Tucson, AZ 85721
DDM 9212345 A000; 09/01/1992; $35,961; 12 mo.

A Knowledge-Based Approach to Design Representation and Analysis
Sheppard, Sheri; Stanford University, Stanford, CA 94305
DDM 9102050 A001; 07/01/1991; $41,120; 12 mo.

Presidential Young Investigator Award: Distributed and Integrated Environment for Computer-Aided Engineering; Cooperative Engineering Design
Sriram, Duvvuru; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 8957464 A003; 09/01/1989; $62,500; 12 mo.

Enhancing the Development of Product Requirements
Stauffer, Larry; Morris, Linda; University of Idaho, Moscow, ID 83843
DDM 9114752 A001; 09/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $5,000
DDM 9114752 A002; 09/01/1991; $70,000; 12 mo.

Small Grants for Exploratory Research: Development of Methods and Tools for Planning and Managing the Design of Systems
Steward, Donald; California State University-Sacramento, Sacramento, CA 95819
DDM 9121522 A000; 03/15/1992; $27,013; 12 mo.

Presidential Young Investigator Award: Design Optimization and Decision Analysis
Thurston, Deborah; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 8957420 A003; 09/01/1989; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000
DDM 8957420 A004; 09/01/1989; $62,500; 12 mo.

Strategic Manufacturing Initiative: Comprehensive Supervision System for Machining Centers
Tlusty, Jiri; Principe, Jose; Dankel, Douglas; Smith, Kevin Scott; University of Florida, Gainesville, FL 32611
DDM 8914084 A002; 08/01/1990; $251,008; 12 mo.

Presidential Young Investigator Award: Geometric Modeling and Tolerances
Turner, Joshua; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 9057598 A002; 07/15/1990; $60,000; 12 mo.

Workshop: Critical Issues in Life Cycle Design of Biomedical Engineering Products; Stanford University, January 20-22, 1993
Waldron, Manjula; Ohio State University Research Foundation, Columbus, OH 43210
DDM 9222243 A000; 09/15/1992; $18,800; 12 mo.
Jointly Funded with BIOMEDICAL ENGINEERING $2,000

Automated Geometric Reasoning of Metal Forming Processes
Weber, G. Gustavo; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9115467 A001; 09/01/1991; $60,006; 12 mo.
Jointly Funded with SOLID MECHANICS $40,000

Research Initiation: Fractal-Based Tolerance Technology for Engineering Design and Manufacturing
Wood, Kristin; University of Texas at Austin, Austin, TX 78712
DDM 9111372 A001; 09/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $10,000

Strategic Manufacturing Initiative: A Unified Representation to Support Evaluation of Designs for Manufacturibility
Wozny, Michael; Turner, Joshua; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 8914172 A003; 10/01/1989; $5,007; 0 mo.

Research Initiation: Global Optimization Algorithms for Engineering Design
Zabinsky, Zelda; University of Washington, Seattle, WA 98195
DDM 9211001 A000; 07/15/1992; $30,309; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $15,000

Manufacturing Processes and Equipment Program

Manufacturing Machines and Equipment

Production of Ultrafine Wire by Augmented Hydrostatic Extrusion
Avitzur, Betzalel; Lehigh University, Bethlehem, PA 18015
DDM 9014816 A002; 09/01/1990; $102,019; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $51,009

Presidential Young Investigator Award: Joining of Plastics and Composites
Benatar, Avraham; Ohio State University Research Foundation, Columbus, OH 43210
DDM 9058154 A003; 07/15/1990; $100,000; 12 mo.

Design and Control of Multi-Degree-of-Freedom Vehicles for Industrial Applications
Borenstein, Johann; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9114394 A001; 09/15/1991; $75,783; 12 mo.

Integrated Manufacturing System for Diffractive Optics
Bowen, John; Rochester Photonics Corp., Fairport, NY 14450
III 9161206 A000; 01/01/1992; $49,984; 6 mo.

Presidential Young Investigator Award: Design and Analysis of Tandem Configurations for Automated Guided Vehicle Systems
Bozer, Yavuz; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 8858562 A004; 09/15/1988; $25,000; 12 mo.

A High Precision, Six Degree-of-Freedom, Single-Sided, Noncontact, Optical Sensor Suitable for Assembly Automation
Busch-Vishniac, Ilene; Buckman, A. Bruce; Wang, Wanjun; University of Texas at Austin, Austin, TX 78712
DDM 9100580 A001; 09/01/1991; $74,999; 12 mo.

Control of the Laser Machining Process
Chryssolouris, George; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9014619 A001; 01/01/1991; $69,874; 12 mo.

Advances in Design of Automated Wire and Die Bonding Machinery in Microelectronic Manufacturing
Cohen, Ira; Ayyaswamy, Portonovo; University of Pennsylvania, Philadelphia, PA 19104
DDM 9000573 A003; 06/01/1990; $10,000; 9 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $5,000

Engineering Faculty Internship: Mechatronic Design and Construction of a Materials Handling Test Apparatus
Craig, Kevin; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 9213542 A000; 06/15/1992; $24,208; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $24,208

Strategic Manufacturing Initiative: Research in Ultra Precision Machining
DeBra, Daniel; Binford, Thomas; Hesselink, Lambertus; Parkinson, Bradford; Stanford University, Stanford, CA 94305
DDM 8914232 A003; 08/01/1990; $225,000; 12 mo.

Laboratory for Applied Manufacturing Controls
DeVries, Marvin; Duffie, Neil; Lorenz, Robert; Sanders, Jerry; Spiewak, Slawomir; University of Wisconsin-Madison, Madison, WI 53706
DDM 9202885 A000; 07/01/1992; $155,200; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $77,600

Process Model-Based Intelligent Control of Diamond Turning
Dow, Thomas; Ro, Paul; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 9202318 A000; 06/01/1992; $75,000; 12 mo.

High-Performance Linear Induction Motor-Based Material Mover
Duffie, Neil; Lorenz, Robert; Sanders, Jerry; University of Wisconsin-Madison, Madison, WI 53706
DDM 8912361 A004; 10/01/1989; $138,100; 12 mo.
DDM 8912361 A005; 10/01/1989; $25,000; 0 mo.

Engineering Research Equipment Grant: Ultrasonic Scanning System
Edie, Danny; Bagchi, Amit; Fain, Charles; Kennedy, John; Ogale, Amod; Clemson University, Clemson, SC 29634
DDM 9213132 A000; 07/01/1992; $66,000; 12 mo.

Small Grants for Exploratory Research: Helical Drill Point Grinder
Ehmann, Kornel; Northwestern University, Evanston, IL 60208
DDM 9201144 A000; 02/01/1992; $49,280; 12 mo.

Presidential Young Investigator Award: Machine Tool Accuracy and Precision
Ferreira, Placid; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 9157191 A001; 07/15/1991; $62,500; 12 mo.

Engineering Faculty Internship: In-Situ Sensor for Aluminum Aging Process Control
Groza, Joanna; University of California-Davis, Davis, CA 95616-8671
DDM 9213685 A000; 07/15/1992; $25,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $25,000

International Conference on Transport Phenomena in Processing, March 22-26, 1992
Guceri, Selcuk; University of Delaware, Newark, DE 19716
DDM 9114322 A000; 02/15/1992; $15,000; 12 mo.
Jointly Funded with THERMAL TRANSPORT AND PROCESSING $10,000

Closed-Loop Control of Sheet Forming Processes
Hardt, David; Boyce, Mary; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9202362 A000; 08/01/1992; $100,001; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT and CROSS-DIRECTORATE PROGRAMS $66,667

Strategic Manufacturing Initiative: Nanotechnology for Advanced Mass Storage
Hocken, Robert; Greene, Richard; Nicollian, Edward; Shelnutt, James; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 8913964 A005; 10/01/1989; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Cooperative Agreement: Research in Precision Engineering
Hocken, Robert; Raja, Jayaraman; Shelnutt, James; Trumper, David; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 9114710 A001; 10/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
DDM 9114710 A002; 10/01/1991; $200,149; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $50,000

National Science Foundation - Division of Design and Manufacturing Systems Grantees Conference; Charlotte, North Carolina; January 6-8, 1993
Hocken, Robert; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 9212644 A000; 06/01/1992; $97,53; 12 mo.
Jointly Funded SPECIAL PROGRAMS $72,532

Industry/University Cooperative Research Center for Grinding
Howes, Trevor; University of Connecticut, Storrs, CT 06268
EEC 9000925 A003; 01/15/1990; $80,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $30,000

Engineering Research Equipment Grant: Environmental Scanning Electron Microscope for In-Situ Manufacturing Processes, Materials Engineering and Tribological Studies
Komanduri, Ranga; Oklahoma State University, Stillwater, OK 74078
DDM 9112223 A000; 04/15/1992; $150,705; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $50,705

A New Architecture of Computer Numerical Control Servo-Controllers
Koren, Yoram; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9114131 A000; 04/15/1992; $74,460; 12 mo.

Engineering Research Equipment Grant: Two-Axis Rotary Table
Koren, Yoram; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9212224 A000; 06/01/1992; $11,300; 36 mo.

Industry Internship: Gaging Philosophy and Strategy for the Twenty-First Century
Kurfess, Thomas; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9015643 A002; 07/01/1990; $1,130; 0 mo.

NSF Young Investigator: Ultra-High Precision Engineering Systems; Control, Metrology, Data Reduction and Quality Assurance
Kurfess, Thomas; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9257514 A000; 09/01/1992; $25,000; 12 mo.

High Temperature Ceramic Dies for Superplastic Forming
Laurich-McIntyre, Suzanne; Pyro Media Inc., Seattle, WA 98108
III 9160182 A000; 02/01/1992; $50,000; 6 mo.

Presidential Young Investigator Award: High Performance Precision Motion Control
Lee, Kok-Meng; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 8958383 A003; 09/01/1989; $62,500; 12 mo.

Presidential Young Investigator Award: Dynamics of Electro-Mechanical Devices
Lieu, Dennis; University of California-Berkeley, Berkeley, CA 94720
DDM 8958406 A004; 06/01/1989; $62,500; 12 mo.

Presidential Young Investigator Award: Economic Replacement of Evolving Manufacturing Technology
Lohmann, Jack; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9296162 A000; 11/01/1991; $32,835; 9 mo.

Microdynamics and Nanodynamics: Materials, Structures and Devices
MacDonald, Noel; Thomas, Robert; Cornell University - Endowed, Ithaca, NY 14853
ECS 8915277 A003; 08/15/1989; $104,200; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC and MATERIALS PROCESSING AND MANUFCT $82,100

Temperature Modulation Instrument for Glass Manufacturing
Markham, James; Advanced Fuel Research Inc., East Hartford, CT 06138-0379
III 9160583 A000; 01/01/1992; $49,516; 6 mo.

Presidential Young Investigator Award: An Intelligent Planning Environment for Dimensional Inspection
Menq, Chia-Hsiang; Ohio State University Research Foundation, Columbus, OH 43210
DDM 8957722 A004; 11/01/1989; $62,500; 12 mo.

Historical Review of Research on Machining and Grinding in the United States
Merchant, M. Eugene; Institute of Advanced Manufacturing Sciences Inc., Cincinnati, OH 45216
DDM 9196034 A001; 09/01/1990; $6,520; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $6,520

A Non-Invasive Sensor Technique for Process Control in Plasma Processing Reactors
Meyyappan, M.; Scientific Research Associates Inc., Glastonbury, CT 06033
III 9161456 A000; 01/01/1992; $49,897; 6 mo.

European, CIM Research Site Visitations to Access Potential for ESPRIT/NSF Research Collaboration
Moodie, Colin; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9123984 A000; 01/01/1992; $46,538; 4 mo.
Jointly Funded with PRODUCTION SYSTEMS and SPECIAL PROGRAMS $31,538
DDM 9123984 A001; 01/01/1992; $4,470; 0 mo.
Jointly Funded with COMPUTER INTEGRATED ENGINEERNG $2,970

High Speed Vision System for Precision Inspection
Mostafavi, M. Taghi; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 9215732 A000; 10/01/1992; $76,309; 12 mo.

Bulk Silicon Technologies for Microelectromechanical Systems
Najafi, Khalil; Wise, Kensall; Crary, Selden; Orr, Bradford; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 8915215 A003; 09/01/1989; $48,400; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $48,400

Research Initiation: Intelligent Machining Monitoring and Diagnostic System for Quality Assurance Based on Multiple Sensor Integration
Okafor, Anthony; University of Missouri-Rolla, Rolla, MO 65401
DDM 9111712 A001; 06/01/1991; $26,466; 12 mo.

Industry/University Cooperative Research Center for Material Handling Research
Parker, Sandra; University of Arkansas-Main Campus, Fayetteville, AR 72701
EEC 9111573 A002; 06/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Presidential Young Investigator Award: Robotic Assembly
Peshkin, Michael; Northwestern University, Evanston, IL 60208
DDM 8857854 A004; 09/01/1988; $11,688; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $9,999
DDM 8857854 A005; 09/01/1988; $43,349; 12 mo.

Self-Assembling Microstructures with Application to Precision Resonant-Structure Micromotors
Pisano, Albert; Howe, Roger; University of California-Berkeley, Berkeley, CA 94720
ECS 8915128 A003; 09/01/1989; $86,300; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $36,300

Research Areas in Manufacturing Unit Processes
Pollack, Kerstin; National Academy of Sciences, Washington, DC 20418
DDM 9022041 A001; 02/01/1991; $239,171; 12 mo.
Jointly Funded with SPECIAL PROGRAMS and SOLID MECHANICS $169,586
DDM 9022041 A002; 02/01/1991; $148,931; 0 mo.
Jointly Funded with DEFENSE $148,931

Near Field Scanning Infrared Microscope
Raja, Jayaraman; Patten, John; Hocken, Robert; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 9019776 A001; 02/15/1991; $103,400; 12 mo.

Modeling, Monitoring and Control of Abrasive Flow Machining (AFM) Process
Rajurkar, Kamlakar; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
DDM 9102937 A001; 09/01/1991; $54,742; 12 mo.
DDM 9102937 A002; 09/01/1991; $3,000; 0 mo.

Modeling and Control of Electro Discharge Machining for Machining of Advanced Materials and Complex Shapes
Rajurkar, Kamlakar; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
DDM 9215298 A000; 09/15/1992; $68,347; 24 mo.

Study and Conceptual Development of Advanced Tooling for High-Productivity Automated Machine Tools
Rivin, Evgeny; Karlic, P.; Wayne State University, Detroit, MI 48202
DDM 9005654 A002; 06/01/1990; $108,760; 12 mo.
DDM 9005654 A003; 06/01/1990; $3,578; 0 mo.

Research Initiation: Force and Deformation Analysis for Automated Fixture Design
Sakurai, Hiroshi; Colorado State University, Fort Collins, CO 80523
DDM 9209371 A000; 07/15/1992; $69,960; 24 mo.

Low-Temperature Rise Water Hydrostatic Bearing for Precision Machine Tools
Slocum, Alexander; Lienhard, John; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9201906 A000; 10/01/1992; $75,000; 12 mo.

Presidential Young Investigator Award: Robotics and Walking Machines
Song, Shin-Min; University of Illinois at Chicago, Chicago, IL 60680
DDM 8657920 A006; 08/01/1987; $37,500; 0 mo.

Engineering Faculty Internship: Develop a Comprehensive Control System for Turning Centers
Stern, Elliot; Auburn University, Auburn, AL 36849
DDM 9214675 A000; 07/15/1992; $6,843; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $6,843

Presidential Young Investigator Award: Research in Rapid Assembly and Part Design
Sturges, Robert; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9058558 A002; 07/15/1990; $62,500; 12 mo.

Presidential Young Investigator Award: Cost Effective Screening Techniques for Automated Inspection Systems
Tang, Kwei; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
DDM 8857557 A004; 09/01/1988; $33,103; 12 mo.

Engineering Faculty Internship: Development of Intelligent Gear Inspection System
Tansel, Ibrahim; Arch, Allan; Florida International University, Miami, FL 33199
DDM 9213770 A000; 07/15/1992; $25,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and SPECIAL PROGRAMS $25,000

Cooperative Agreement: Machine Tool Research
Tlusty, Jiri; Smith, Kevin Scott; Principe, Jose; Yeralan, Sencer; University of Florida, Gainesville, FL 32611
DDM 9114588 A001; 09/01/1991; $195,332; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $50,000

Analysis and Design of a Viscously Damped Magnetic Suspension System
Trumper, David; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 9114737 A001; 09/01/1991; $82,166; 12 mo.

Presidential Young Investigator Award: Magnetic Suspension Control of Precision Motion
Trumper, David; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 9158054 A001; 08/15/1991; $100,000; 12 mo.

Laser Phase Array Generation of Ultrasound for On-Line Weld Quality Control
Umeagukwu, Charles; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9001733 A002; 09/01/1990; $19,000; 0 mo.
DDM 9001733 A003; 09/01/1990; $79,188; 12 mo.

Engineering Faculty Internship: Intelligent Machine Tool Monitoring: A Neural Network Approach
Wang, Hsu-Pin; Chen, F. Frank; University of Iowa, Iowa City, IA 52242
DDM 9113770 A001; 08/01/1991; $3,762; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $3,762

Small Grants for Exploratory Research (SGER): A Novel Milling Machine Structure
Ward, Allen; Stein, Jeffrey; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9121962 A000; 11/15/1991; $9,000; 4 mo.

Automated, Rapid Fabrication of Complex Optical Components
Wilson, Scott; Sandia Systems, Albuquerque, NM 87111
III 9160320 A000; 01/01/1992; $49,932; 6 mo.

STRATMAN: Development of a Science Base for Drills and Drill Grinding Processes
Wu, S.; Schunck, Brian; Woo, Tony; Ni, Jun; Sha, Jilun; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9215470 A000; 09/01/1992; $599,296; 36 mo.
Jointly Funded with DEFENSE and SPECIAL PROGRAMS $599,296

Presidential Young Investigator Award: The Dynamics and Control of High-Speed Direct-Drive Manipulators
Youcef-Toumi, Kamal; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 8657835 A005; 09/01/1987; $62,500; 12 mo.

Neural Network Error Compensation of Machine Tools and Coordinate Measuring Machines
Ziegert, John; Smith, Kevin Scott; University of Florida, Gainesville, FL 32611
DDM 9017293 A001; 02/15/1991; $76,570; 12 mo.

Materials Processing and Manufacturing

Transport Phenomena and Microstructure Development in Thermoplastic Composites Processing
Advani, Suresh; University of Delaware, Newark, DE 19716
DDM 9203968 A000; 09/01/1992; $48,349; 12 mo.

Strategic Manufacturing Initiative: Computer-Integrated Analysis of Deformation Processing
Anand, Lallit; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 8914161 A002; 09/01/1990; $330,354; 12 mo.

Experimental and Computational Studies of Complex Viscoelastic Flows
Armstrong, Robert; Brown, Robert; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9202130 A000; 09/01/1992; $79,500; 12 mo.

Production of Ultrafine Wire by Augmented Hydrostatic Extrusion
Avitzur, Betzalel; Lehigh University, Bethlehem, PA 18015
DDM 9014816 A002; 09/01/1990; $102,019; 12 mo.

Modeling and Characterization of Materials for Dynamic Metal Working Processes
Batra, Romesh; University of Missouri-Rolla, Rolla, MO 65401
MSS 9121279 A001; 08/15/1991; $55,000; 12 mo.

Control of Fracture Damage in Precision Machining of Ceramics
Bifano, Thomas; Boston University, Boston, MA 02215
DDM 9202377 A000; 08/15/1992; $74,293; 12 mo.

Development of Process Control for Microwave Joining of Ceramics
Black, W. Murray; Beale, Guy; George Mason University, Fairfax, VA 22030
DDM 9115417 A000; 04/15/1992; $58,731; 12 mo.

Presidential Young Investigator Award: Deformation Processing of Materials
Boyce, Mary; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9157899 A001; 08/15/1991; $60,000; 12 mo.

High Concentration Ozone Production for Semiconductor Manufacturing
Boyers, David; Adelphi Technology Inc., Palo Alto, CA 94306
III 9161024 A000; 01/01/1992; $50,000; 6 mo.

Numerical Simulation of Solidification and Shrinkage Prediction of Cast Irons
Bradley, Fred; University of Wisconsin-Madison, Madison, WI 53706
DDM 9102682 A001; 07/01/1991; $76,960; 12 mo.

Presidential Young Investigator Award: Structure Development in Polymer Processing
Cakmak, Mukerrem; University of Akron, Akron, OH 44325
DDM 8858303 A007; 10/01/1988; $37,500; 0 mo.
DDM 8858303 A008; 10/01/1988; $25,000; 12 mo.

Materials Synthesis and Processing: Computer Aided Microelectronics Manufacturing Technology for Excimer Laser Based Lithography
Cavallaro, Joseph; Tittel, Frank; Wilson, William; William Marsh Rice University, Houston, TX 77252
DDM 9202639 A000; 10/01/1992; $107,472; 12 mo.
Jointly Funded with LIGHTWAVE TECHNOLOGY $33,000

Presidential Young Investigator Award: Precision Finishing of Ceramics
Chandrasekar, Srinivasan; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9057916 A002; 10/01/1990; $62,500; 12 mo.

Materials Processing and Engineering for Superplastic Ceramics
Chen, I-Wei; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9024975 A001; 08/01/1991; $90,000; 12 mo.

Research Planning Grant: Conformability of Fiber Preform Architectures
Chen, Julie; Boston University, Boston, MA 02215
DDM 9209982 A000; 09/01/1992; $18,000; 18 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $9,000

Simultaneous Seamtracking and Weld Penetration Control
Chin, Bryan; Auburn University, Auburn, AL 36849
DDM 9201642 A000; 06/15/1992; $84,420; 12 mo.

Electron Beam Curing of Polymer Resists
Collins, George; Colorado State University, Fort Collins, CO 80523
DDM 9108531 A000; 01/01/1992; $90,646; 12 mo.

Presidential Young Investigator Award: Intelligent Design and Manufacturing Systems
Colton, Jonathan; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 8957848 A004; 08/15/1989; $62,500; 12 mo.

Workshop on Teaching Design Skills; Atlanta, Georgia; March 16-17, 1992
Colton, Jonathan; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9213092 A000; 03/15/1992; $5,000; 12 mo.
Jointly Funded with ENGINEERING DESIGN $2,500

Two-Component Lubricant/Coolant Fluids for High-Speed Machining
Colvin, David; Triangle Research and Development Corporation, Research Triangle Park, NC 27709
III 9104909 A000; 06/01/1992; $235,229; 24 mo.

NSF Young Investigator: Material Processing and Intelligent Manufacturing
Coulter, John; Lehigh University, Bethlehem, PA 18015
DDM 9258026 A000; 09/01/1992; $25,000; 12 mo.

Constitutive Modelling of Mechanical Response of Materials in Semiconductor Devices with Emphasis on Interface Behavior
Desai, Chandrakant; Kundu, Tribikram; Prince, John; University of Arizona, Tucson, AZ 85721
DDM 9102177 A001; 08/15/1991; $92,753; 12 mo.
Jointly Funded with SOLID MECHANICS $46,376

Laboratory for Applied Manufacturing Controls
DeVries, Marvin; Duffie, Neil; Lorenz, Robert; Sanders, Jerry; Spiewak, Slawomir; University of Wisconsin-Madison, Madison, WI 53706
DDM 9202885 A000; 07/01/1992; $155,200; 12 mo.

Research Initiation Award: Scan Welding; Process Modeling and Adaptive Control
Doumanidis, Charalabos; Tufts University, Medford, MA 02155
DDM 9209141 A000; 09/01/1992; $95,589; 36 mo.

Engineering Faculty Internship: Development of Integrated Constitutive Models, Modeling and Optimization for Isothermal Rolling of Superalloys
Dwivedi, Suren; Dax, F. Robert; West Virginia University Research Corp., Morgantown, WV 26506
DDM 9113952 A001; 08/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Travel Grants: U.S. National Committee for Theoretical and Applied Mechanics, to be held in Haifa, Israel, August 22-28, 1992
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
CTS 9206382 A000; 03/01/1992; $20,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $6,666

Small Grants for Exploratory Research: Helical Drill Point Grinder
Ehmann, Kornel; Northwestern University, Evanston, IL 60208
DDM 9201144 A000; 02/01/1992; $49,280; 12 mo.
Jointly Funded with MANUFACTURING MACHINES AND EQUIP $29,280

Undergraduate Materials Education Initiative: Development and Implementation of a New Materials Synthesis and Processing Laboratory
Flemings, Merton; Rubner, Michael; Massachusetts Institute of Technology, Cambridge, MA 02139
DMR 9218128 A000; 10/01/1992; $350,000; 36 mo.
Jointly Funded with METALLURGY and CERAMICS $175,000

Biological Synthesis and Materials Properties of Bacterial Polyesters
Fuller, R. Clinton; Goodwin, Steven; Lenz, Robert; University of Massachusetts-Amherst, Amherst, MA 01003
MCB 9202419 A000; 09/01/1992; $285,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $220,000

Dynamics of Excimer Laser Ablation in Plasma Environments
Gilgenbach, Ronald; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9108971 A001; 08/01/1991; $43,305; 12 mo.

Heat Transfer in Excimer Laser Materials Processing and Micromachining
Grigoropoulos, Costas; University of California-Berkeley, Berkeley, CA 94720
CTS 9210333 A000; 09/15/1992; $232,398; 36 mo.

International Conference on Transport Phenomena in Processing, March 22-26, 1992
Guceri, Selcuk; University of Delaware, Newark, DE 19716
DDM 9114322 A000; 02/15/1992; $15,000; 12 mo.
10,000
Jointly Funded with MANUFACTURING MACHINES AND EQUIP and THERMAL TRANSPORT AND PROCESSING $10,000

Forming Complex-Shaped Advanced Composite Parts
Gutowski, Timothy; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9114788 A001; 10/01/1991; $15,557; 0 mo.

Advanced Manufacturing Concepts for Shaping Superplastic Sheet Materials
Hamilton, C. Howard; Bayoumi, Abdel; Zbib, Hussein; Washington State University, Pullman, WA 99164-3140
DDM 9114852 A000; 08/15/1992; $99,925; 12 mo.
Jointly Funded with MATERIALS ENGINEERING and SOLID MECHANICS $34,000

Closed-Loop Control of Sheet Forming Processes
Hardt, David; Boyce, Mary; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9202362 A000; 08/01/1992; $100,001; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $66,667

STRATMAN: The Role of Grinding Protocol on Cam Service Life
Hendricks, Robert; Dowling, Norman; Eiss, Norman; Landgraf, Ronald; Lavine, Adrienne; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
DDM 9215629 A000; 10/01/1992; $599,980; 36 mo.
Jointly Funded with DEFENSE $599,980

Electromagnetic Shaping and Containment of Liquid Metals
Hoburg, James; Cramb, Alan; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9120669 A000; 08/01/1992; $112,025; 12 mo.

Shape Rolling and Lateral Spread
Johnson, Robert; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 9016496 A001; 04/15/1991; $61,282; 12 mo.
DDM 9016496 A002; 04/15/1991; $5,600; 0 mo.

Cavity Filling Simulation with Experimental Verification
Johnson, David; Raad, Peter; Southern Methodist University, Dallas, TX 75275
DDM 9114846 A000; 12/01/1991; $55,229; 12 mo.

Nickel Base Complex Nanophase Materials
Johnson, D. Lynn; Weertman, Julia; Mason, Thomas; Weertman, Johannes; Dravid, Vinayak; Northwestern University, Evanston, IL 60208
DMR 9202574 A000; 09/15/1992; $442,900; 12 mo.
Jointly Funded with CERAMICS $100,000

Presidential Young Investigator Award: Quantitative Measurement of Point Defects Introduced by Phosphorus Implantation into Silicon
Jones, Kevin; University of Florida, Gainesville, FL 32611
DDM 9057617 A002; 07/01/1990; $81,500; 12 mo.

Intelligent Processing of Materials
Joseph, Babu; Kardos, John; Washington University, St. Louis, MO 63130
DDM 9123861 A000; 07/01/1992; $61,104; 12 mo.

Laser Beam - Splitting and Materials Processing
Kannatey-Asibu, Elijah; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9114148 A001; 09/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000
DDM 9114148 A002; 09/01/1991; $83,253; 12 mo.

Research Initiation Award: Multi-Layer Composite Coatings for High Speed Machining
Kasichainula, Jagannadham; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 9209209 A000; 09/01/1992; $90,000; 36 mo.

Predicting Engineering Properties in Injection Molded Parts by Neural Network Computation
Kim, Byung; University of Massachusetts-Amherst, Amherst, MA 01003
DDM 9115419 A001; 09/01/1991; $63,996; 12 mo.

Process Sequence Design in Metal Forming
Kobayashi, Shiro; University of California-Berkeley, Berkeley, CA 94720
DDM 9101199 A001; 07/15/1991; $30,366; 0 mo.
DDM 9101199 A002; 07/15/1991; $90,111; 12 mo.

Engineering Research Equipment Grant: Environmental Scanning Electron Microscope for In-Situ Manufacturing Processes, Materials Engineering and Tribological Studies
Komanduri, Ranga; Oklahoma State University, Stillwater, OK 74078
DDM 9112223 A000; 04/15/1992; $150,705; 12 mo.
Jointly Funded with MANUFACTURING MACHINES AND EQUIP and INTERFAC, TRANS, AND THERMODYN PRO $50,705

Diamond Coatings on Cutting Tools
Komanduri, Ranga; Oklahoma State University, Stillwater, OK 74078
DDM 9204345 A000; 06/15/1992; $104,386; 12 mo.

A Self-Stabilizing Crystal Pulling Process
Kou, Sindo; University of Wisconsin-Madison, Madison, WI 53706
CTS 9202637 A000; 09/15/1992; $188,400; 12 mo.

Presidential Young Investigator Award: Metal Matrix Composites by Spray Atomization and Deposition
Lavernia, Enrique; University of California-Irvine, Irvine, CA 92717
DDM 8957449 A003; 08/15/1989; $62,500; 12 mo.

Presidential Young Investigator Award: Thermal Aspects of Grinding
Lavine, Adrienne; University of California-Los Angeles, Los Angeles, CA 90024
DDM 8857677 A005; 08/01/1988; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000

Presidential Young Investigator Award: Thermal Aspects of Grinding
Lavine, Adrienne; University of California-Los Angeles, Los Angeles, CA 90024
DDM 8857677 A006; 08/01/1988; $25,000; 12 mo.
Jointly Funded with THERMAL TRANSPORT AND PROCESSING $12,500

Solid Phase Forming of Polymer Materials
Lee, Daeyong; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 8922289 A002; 07/15/1990; $62,056; 12 mo.

Mold Filling and Curing in Resin Transfer Molding and Structural Reaction Injection Molding - Micro and Macro Analyses
Lee, Ly James; Ohio State University Research Foundation, Columbus, OH 43210
DDM 9112990 A001; 09/15/1991; $99,526; 12 mo.

Research Initiation: Novel Processing of Tape-Cast Ceramic Layers
Lewis, Jennifer; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 9211554 A000; 06/15/1992; $100,000; 36 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $50,000

Research Initiation: Closed-Loop Shape Control During Hot Isostatic Pressing Process
Li, Weiping; Wayne State University, Detroit, MI 48202
DDM 9210970 A000; 09/01/1992; $100,000; 36 mo.

Assistance for International Experts to Participate in and Partial Support for Planning of MI'92, the Manufacturing International Conference in 1992
Ling, Frederick; Institute for Productivity Research, New York, NY 10018
DDM 9103885 A001; 07/01/1991; $37,500; 0 mo.
Jointly Funded with NAVY $11,000

Modeling and Analysis of Global Vision for Operating Multiple Free-Ranging AGVs on the Factory Floor
Luo, Ren; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 9202792 A000; 10/01/1992; $13,509; 12 mo.
Jointly Funded with SPECIAL PROGRAMS and COMPUTER INTEGRATED ENGINEERNG $988

Microdynamics and Nanodynamics: Materials, Structures and Devices
MacDonald, Noel; Thomas, Robert; Cornell University - Endowed, Ithaca, NY 14853
ECS 8915277 A003; 08/15/1989; $104,200; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $82,100

Autonomous System for Cylindrical Plunge Grinding
Malkin, Stephen; Danai, Kourosh; University of Massachusetts-Amherst, Amherst, MA 01003
DDM 9114484 A001; 09/01/1991; $95,292; 12 mo.

Presidential Young Investigator Award: Mechanics of Processing and Failure of Composite Material
Mataga, Peter; University of Florida, Gainesville, FL 32611
DDM 9057626 A002; 08/01/1990; $62,500; 12 mo.

Materials Synthesis and Processing: Experimental and Theoretical Studies on Titanium Nitride Synthesis by Laser Assisted Processes
Mazumder, Jyotimoy; Kar, A.; Kasichainula, Jagannadham; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 9202315 A000; 10/01/1992; $179,987; 14 mo.
Jointly Funded with CERAMICS $89,993

Industry/University Cooperative Research Center for Ceramic Research
McLaren, Malcolm; Rutgers University-New Brunswick, New Brunswick, NJ 08903
EEC 9047182 A005; 09/01/1990; $10,000; 0 mo.

Engineering Faculty Internship: Characterization of Process Parameters for High-Speed Heat-Set Web Offset Lithography
Modi, Vijay; Columbia University, New York, NY 10027
DDM 9113801 A001; 07/15/1991; $10,000; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000

An Innovative Use of Pulsed Power Technology for Separation of Minerals from Ores
Moeny, William; Tetra Corporation, Albuquerque, NM 87109
III 9024821 A000; 08/01/1992; $249,916; 24 mo.

Continuous Curing of Filament Wound Structrues Using Infrared Heating
Moon, Tess; University of Texas at Austin, Austin, TX 78712
DDM 9109592 A000; 12/01/1991; $60,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $60,000

NSF Young Investigator: Modeling and Control of Manufacturing Processes
Moon, Tess; University of Texas at Austin, Austin, TX 78712
DDM 9258413 A000; 09/01/1992; $25,000; 12 mo.

The Synergistic Effects of Ceramic Materials Synthesis Using Vapor-Enhanced Reactive Sintering
Moore, John; Readey, Dennis; Wirth, David; Colorado School of Mines, Golden, CO 80401
CTS 9202948 A000; 09/15/1992; $249,500; 12 mo.
Jointly Funded with CERAMICS $99,500

Research Initiation: Plasma-Assisted Pulsed Laser Deposition of High Temperature Superconducting Thin Films; Novel Optical Plume Diagnostics
Mukherjee, Pritish; University of South Florida, Tampa, FL 33620
DDM 9210326 A000; 09/01/1992; $100,000; 36 mo.

Bulk Silicon Technologies for Microelectromechanical Systems
Najafi, Khalil; Wise, Kensall; Crary, Selden; Orr, Bradford; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 8915215 A003; 09/01/1989; $48,400; 12 mo.
Jointly Funded with MANUFACTURING MACHINES AND EQUIP $48,400

Development of Computational and Experimental Capability for the Simulation of High Speed Machining
Needleman, Alan; Brown University, Providence, RI 02912
DDM 9016568 A003; 10/15/1990; $365,390; 12 mo.

RUI: Advanced Manufacturing Research for Semiconductor Devices, Materials and Processes
O'Clock, George; Mankato State University, Mankato, MN 56001
DDM 9111686 A000; 06/01/1992; $53,843; 24 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $26,922

Materials Synthesis and Processing: A Novel Technique of Net-Form Materials Synthesis
Orme, Melissa; Muntz, E.; Langdon, Terence; University of Southern California, Los Angeles, CA 90089
DDM 9204201 A000; 10/01/1992; $313,399; 24 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS and METALLURGY $236,123

Research Initiation: Investigation of the Thermomechanical Behavior of Compression Molded Fiber Reinforced Composite Parts
Osswald, Tim; University of Wisconsin-Madison, Madison, WI 53706
DDM 9009158 A002; 07/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Presidential Young Investigator Award: Polymer Processing, Modelling and Simulation
Osswald, Tim; University of Wisconsin-Madison, Madison, WI 53706
DDM 9158145 A001; 07/15/1991; $62,500; 12 mo.

Engineering Faculty Internship: Development of Low Cost Precision Investment Casting Process with 97-100% Recovery of Good Products
Owusu, Yaw; Herman, Marvin; Vonnegut, George; Jackson, James; Florida Agricultural and Mechanical University, Tallahassee, FL 32307
DDM 9213703 A000; 08/01/1992; $9,995; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $9,995

A New Concept for Refining Molten Metals and Recovering Metals from Slags
Pal, Uday; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9113480 A000; 11/01/1991; $88,829; 12 mo.

Strategic Manufacturing Initiative: Manufacturing Underground Space
Peterson, Carl; Nelson, Priscilla; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 8914219 A002; 08/01/1990; $272,318; 12 mo.
Jointly Funded with GEOMECHAN, GEOTECH AND GEOENVIRN $136,159

Self-Assembling Microstructures with Application to Precision Resonant-Structure Micromotors
Pisano, Albert; Howe, Roger; University of California-Berkeley, Berkeley, CA 94720
ECS 8915128 A003; 09/01/1989; $86,300; 12 mo.
Jointly Funded with MANUFACTURING MACHINES AND EQUIP $36,300

Continuous Czochralski Growth of Silicon Single Crystals
Prasad, Vishwanath; Koziol, Jurek; Columbia University, New York, NY 10027
DDM 9114593 A001; 09/01/1991; $9,250; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $9,250
DDM 9114593 A002; 09/01/1991; $97,338; 12 mo.

Conference: Organization of the 1992 Surface Roughness and Scattering Topical Meeting to be held in Tucson, Arizona on June 1-3, 1992
Quinn, Jarus; Optical Society of America, Washington, DC 20036
ECS 9216232 A000; 06/15/1992; $4,600; 12 mo.
Jointly Funded with SURFACE ENGINEERING AND TRIBOLOGY $3,000

Modeling, Monitoring and Control of Abrasive Flow Machining (AFM) Process
Rajurkar, Kamlakar; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
DDM 9102937 A001; 09/01/1991; $54,742; 12 mo.
Jointly Funded with MANUFACTURING MACHINES AND EQUIP $27,371

The Effect of Porosity on Localization in Forging Processes
Ramesh, Kaliat; Ponte-Castaneda, Pedro; Johns Hopkins University, Baltimore, MD 21218
DDM 9012230 A002; 09/01/1990; $17,375; 3 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $8,687

Improved Method for Manufacture of Mechanically Alloyed Composite Nb3Sn Conductors
Randall, Robert; Supercon Inc., Shrewsbury, MA 01545
III 9160912 A000; 01/01/1992; $49,977; 6 mo.

In-Situ Electrochemical Processing of Light-Weight Alloys
Reddy, Ramana; University of Nevada-Reno, Reno, NV 89557
DDM 9022127 A000; 12/01/1991; $66,621; 12 mo.

Research Equipment Grant: Centrifugal Particle Sizer
Riman, Richard; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
DDM 9112147 A001; 08/15/1991; $1,558; 0 mo.

STRATMAN: Micro-Constructive Manufacturing
Sachs, Emanuel; Cima, Michael; Cornie, James; Gossard, David; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9215728 A000; 10/01/1992; $600,000; 36 mo.
Jointly Funded with DEFENSE $600,000

Development of a Manufacturing Process to Fabricate Flexible High Critical Temperature Superconductor Wire
Samanta, Shyam; University of Nevada-Reno, Reno, NV 89557
DDM 9016787 A001; 03/01/1991; $4,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,000
DDM 9016787 A002; 03/01/1991; $63,545; 12 mo.

Fundamental Study on Ductile Fracture in Metal Forming
Samanta, Shyam; University of Nevada-Reno, Reno, NV 89557
DDM 9096203 A003; 04/01/1990; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000
DDM 9096203 A004; 04/01/1990; $14,745; 6 mo.

Research Equipment Grant: Novel Plasma Assisted Vapor Deposition
Sampath, W.; Colorado State University, Fort Collins, CO 80523
DDM 9212950 A000; 09/01/1992; $51,100; 12 mo.

Engineering Research Equipment Grant: Insitu Intelligent Materials Processing
Sarin, Vinod; Gevelber, Mike; Boston University, Boston, MA 02215
DDM 9212792 A000; 09/01/1992; $47,066; 12 mo.

Advanced Polymeric Materials: Process Induced Internal Stresses in Laminated Polymer Composites
Seferis, James; University of Washington, Seattle, WA 98195
DDM 9101648 A001; 08/15/1991; $52,000; 12 mo.
Jointly Funded with SOLID MECHANICS $26,000

Rapid Precipitation of Homogeneous Polymer Blends
Shine, Annette; University of Delaware, Newark, DE 19716
DDM 9102435 A001; 08/01/1991; $85,767; 12 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO $15,000

Engineering Faculty Internship: Study of Turbulent Double-Diffusive Transport and Macrosegregation During Continuous Ingot Casting
Shyy, Wei; Backman, Daniel; University of Florida, Gainesville, FL 32611
DDM 9213568 A000; 08/01/1992; $15,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $15,000

Planar-Flow Melt-Spinning of Molten Meltals: Fluid Mechanics, Heat-Transfer and Solidification
Steen, Paul; Cornell University - Endowed, Ithaca, NY 14853
CTS 9024461 A001; 08/15/1991; $92,594; 12 mo.

Synthesis and Analysis of Gas/Polymer Solutions for Ultra-Microcellular Plastics Production
Suh, Nam; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9114738 A000; 03/01/1992; $90,000; 12 mo.

Cooperative Agreement: Research in Processing Technology
Suh, Nam; Sharon, Andre; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9115271 A001; 09/01/1991; $250,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $50,000

Process Modeling of a Novel Plasma Enhanced Vapor Deposition Concept Using Statistical Design of Experiments
Sunthankar, Mandar; IonEdge Corporation, Fort Collins, CO 80526
III 9160419 A000; 01/01/1992; $49,948; 6 mo.

Electrodeposited Ceramic Superlattices
Switzer, Jay; University of Missouri-Rolla, Rolla, MO 65401
DMR 9202872 A000; 09/01/1992; $153,424; 14 mo.

Dynamic Synthesis and Processing of High Temperature Materials
Thadhani, Naresh; Persson, Per-Anders; New Mexico Institute of Mining and Technology, Socorro, NM 87801
DMR 9116570 A000; 04/01/1992; $250,000; 12 mo.
Jointly Funded with COMBUSTION AND THERMAL PLASMAS $100,000

Presidential Young Investigator Award: Mathematical Modeling of Continuous Casting Processing
Thomas, Brian; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 8957195 A003; 09/15/1989; $62,500; 12 mo.

Research on a Manufacturing Process for Making Long, Continuous, High Temperature Superconducting Wires and Tapes
Tomsic, Michael; Plastronic Inc., Troy, OH 45373
III 9160113 A000; 01/01/1992; $49,770; 6 mo.

Process Development and Manufacturing of TiN/TiO2/TiN Thin-Film Microcapacitors for High-Density Integrated Circuits
Truman, J. Kelly; CVC Products Inc., Rochester, NY 14603
III 9160410 A000; 02/01/1992; $50,000; 6 mo.

Materials Synthesis and Processing: Modeling and Control of Macro-Phenomena and Micro-Structure in Steel Rolling
Tseng, Ampere; Drexel University, Philadelphia, PA 19104
DDM 9201831 A000; 10/01/1992; $49,354; 12 mo.
Jointly Funded with MATERIALS ENGINEERING $24,677

Engineering Faculty Internship: Thermal Modeling of Open Die Forgings Using Microcomputer Programs
Van Tyne, Chester; Focht, Robert; Colorado School of Mines, Golden, CO 80401
DDM 9213630 A000; 07/15/1992; $10,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $10,000

Laser-Driven Directional Solidification in High Tc Superconducting Polycrystalline Fibers
Varshney, Usha; American Research Corporation of Virginia, Radford, VA 24143-3406
III 9101565 A001; 08/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Advanced Polymeric Materials: Characterization of Mechanical and Thermal Properties of Advanced Composite Pultrusions
Vaughan, James; Roux, Jeffrey; Mantena, P. Raju; University of Mississippi, University, MS 38677
DDM 9101643 A001; 08/15/1991; $44,904; 12 mo.

Picoliter Solder Droplet Dispensing for Electronics Manufacturing
Wallace, David; MicroFab Technologies Inc., Plano, TX 75074
III 9203071 A000; 10/01/1992; $126,791; 24 mo.

Modeling of the Hot Isostatic Pressing Process
Weber, G. Gustavo; Piehler, Henry; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9115585 A001; 09/01/1991; $75,245; 12 mo.

Optimization and Feedback Control in Sheet Metal Forming - the Intelligent Stamping Die
Weinmann, Klaus; Kashani, Reza; Majlessi, Seyed; Klamecki, Barney; Ramalingam, Subbiah; Michigan Technological University, Houghton, MI 49931
DDM 9022550 A001; 08/15/1991; $198,078; 12 mo.
DDM 9022550 A002; 08/15/1991; $19,232; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $9,616

Workshop on Axiomatic Design and Manufacturing; Boston, Massachusetts
Williams, John; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9203487 A000; 03/01/1992; $11,500; 6 mo.

AIT (U.S.)-CCNAA (Taiwan) Joint Symposium on Advanced Manufacturing Processes in Atlanta, Georgia
Winer, Ward; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
INT 9119969 A000; 06/15/1992; $20,000; 12 mo.

A Unique and New Plasma Assisted Deposition Technique Utilizing In-Situ Renucleation
Withers, James; Materials and Electrochemical Research Corporation, Tucson, AZ 85706
III 9161393 A000; 01/01/1992; $50,000; 6 mo.

NSF Young Investigator: Formal Tolerance and Set-Based Methods in Engineering Design and Manufacturing
Wood, Kristin; University of Texas at Austin, Austin, TX 78712
DDM 9258401 A000; 09/01/1992; $25,000; 12 mo.

Presidential Young Investigator Award: Processing of High-Temperature Structural Composites
Yang, Jenn-Ming; University of California-Los Angeles, Los Angeles, CA 90024
DDM 9057030 A003; 07/15/1990; $35,000; 0 mo.
DDM 9057030 A004; 07/15/1990; $65,000; 12 mo.

AIT (U.S.)-CCNAA (Taiwan) Joint Seminar: Automation and Productivity for Small to Medium Scale Manufacturing Industry in Taipai, Taiwan
Yang, Jackson; University of Maryland-College Park, College Park, MD 20742
INT 9210651 A000; 08/01/1992; $22,500; 12 mo.

Inverse and Design Thermomechanical Problems in Solidification Processing
Zabaras, Nicholas; Cornell University - Endowed, Ithaca, NY 14853
CTS 9115438 A000; 05/15/1992; $159,304; 12 mo.

New Laser Induced Deposition for Microelectronics Application
Zhou, Simon; Florod Corporation, Gardena, CA 90247-5212
III 9160721 A000; 01/01/1992; $48,894; 6 mo.

Study on Materials for the 21st Century
Zwilsky, Klaus; National Academy of Sciences, Washington, DC 20418
DDM 9017571 A001; 03/01/1991; $29,903; 11 mo.
Jointly Funded with SPECIAL PROGRAMS and MATERIALS ENGINEERING $29,903

Operations Research and Production Systems Program

Operations Research

Research Initiation: Unconstrained Optimization in Discrete Event Simulation
Andradottir, Sigrun; University of Wisconsin-Madison, Madison, WI 53706
DDM 9210679 A000; 08/15/1992; $45,330; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $22,665

Integer and Combinatorial Optimization: Polyhedral Methods and Algorithms
Balas, Egon; Cornuejols, Gerard; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9201340 A000; 07/01/1992; $120,004; 12 mo.
Jointly Funded with APPLIED MATHEMATICS and NUMERIC AND SYMBOLIC COMPUTATION $50,001

Presidential Young Investigator Award: Large-Scale Problems in Transportation, Distribution and Logistics
Barnhart, Cynthia; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9058074 A003; 09/01/1990; $35,000; 0 mo.
DDM 9058074 A004; 09/01/1990; $25,000; 12 mo.

Research Initiation: Multiproduct Inventory Models with Demand Substitution
Bassok, Yehuda; Northwestern University, Evanston, IL 60208
DDM 9210754 A000; 08/15/1992; $39,970; 12 mo.

Rescheduling Disrupted Production Systems
Bean, James; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9018515 A001; 04/15/1991; $12,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,687
DDM 9018515 A002; 04/15/1991; $50,000; 12 mo.

Serial and Parallel Computational Methods for Large Scale Problems
Bertsekas, Dimitri; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 8903385 A002; 03/01/1990; $56,008; 12 mo.
Jointly Funded with COMPUTATIONAL ENGINEERING and THEORY OF COMPUTING $35,000

Presidential Young Investigator Award: Analysis of Stochastic in Dynamic Models in Combinatorial Optimization in Queueing Networks
Bertsimas, Dimitris; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9158118 A001; 09/01/1991; $62,500; 12 mo.

Presidential Young Investigator Award: Combinatorial Issues in Large-Scale Network Design
Bienstock, Daniel; Columbia University, New York, NY 10027
DDM 9057665 A002; 07/01/1990; $25,000; 12 mo.

Computational and Applied Aspects of Multiperiod Stochastic Programming
Birge, John; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9215921 A000; 08/01/1992; $194,959; 36 mo.

Cutting Planes for Mixed-Integer Programs
Boyd, E. Andrew; William Marsh Rice University, Houston, TX 77252
DDM 9101578 A001; 07/15/1991; $67,087; 12 mo.
Jointly Funded with NAVY-CUTTING PLANES MIXED INTE $33,430

Presidential Young Investigator Award: Quantitative Models for Optimal Provision of Goods and Services
Brandeau, Margaret; Stanford University, Stanford, CA 94305
DDM 8858355 A006; 09/01/1988; $25,000; 12 mo.

NSF Young Investigator: Application of Artificial Neural and Adaptive Systems to Manufacturing Problems
Burke, Laura; Lehigh University, Bethlehem, PA 18015
DDM 9257337 A000; 09/01/1992; $25,000; 12 mo.

RUI: Queueing Theory and Some of Its Applications in Computer Science and Engineering
Cooper, Robert; Niu, Shun-Chen; Solomon, Martin; Florida Atlantic University, Boca Raton, FL 33431
DDM 9001751 A001; 03/01/1991; $73,797; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $55,348

Presidential Young Investigator Award: Matroid and Polyhedral Theory in Combinatorial Optimization
Coullard, Collette; Northwestern University, Evanston, IL 60208
DDM 9196083 A002; 08/15/1990; $85,000; 12 mo.

Decomposition and Parallel Processing Techniques for Large-Scale Electric Power System Planning Under Uncertainty
Dantzig, George; Glynn, Peter; Stanford University, Stanford, CA 94305
ECS 8906260 A002; 03/01/1990; $49,507; 12 mo.

Issues in Knowledge Based Assistance for IDEF3 Descriptions
de Witte, Paula; Knowledge Based Systems Inc., College Station, TX 77845-5424
III 9123380 A000; 09/01/1992; $249,778; 18 mo.

Computational Methods in the Analysis of Enumeration and Counting Problems with Applications to Manufacturing
Fishman, George; Kulkarni, V.; University of North Carolina at Chapel Hill, Chapel Hill, NC 27514
DDM 8913344 A002; 04/01/1990; $54,273; 12 mo.

Small Grants for Exploratory Research (SGER): Prototype Development for Russian-American Standards Program in Manufacturing
Freeman, H. Jo Anne; California Polytechnic State University Foundation, San Luis Obispo, CA 93401
DDM 9222865 A000; 09/15/1992; $50,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $50,000

Strategic Resource Planning
Gaimon, Cheryl; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9015362 A001; 07/01/1991; $60,000; 12 mo.

Research Initiation: Coordinating the Production of Components and Assemblies When Demands and Yields are Random
Gallego, Guillermo; Columbia University, New York, NY 10027
DDM 9109636 A002; 08/01/1991; $19,841; 12 mo.

Large-Scale Constrained Optimization
Gill, Philip; University of California-San Diego, San Diego, CA 92093
DDM 9204547 A000; 07/01/1992; $40,000; 12 mo.
Jointly Funded with NUMERIC AND SYMBOLIC COMPUTATION $16,923

Discrete-Event Dynamic Systems: Theory and Algorithms
Glynn, Peter; Iglehart, Donald; Stanford University, Stanford, CA 94305
DDM 9101580 A001; 07/01/1991; $50,000; 12 mo.
Jointly Funded with PROBABILITY $10,000

Study of Lagrangean Decompositions
Guignard-Spielberg, Monique; University of Pennsylvania Wharton School of Finance and Com. Philadelphia, PA 19104
DDM 9014901 A001; 06/15/1991; $60,000; 12 mo.

Research Initiation: Capacitated Network Design; Solution Approaches Based on Integer and Linear Programming
Hall, Leslie; Princeton University, Princeton, NJ 08544
DDM 9210979 A000; 08/01/1992; $30,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $15,000

Workshop on Intelligent Manufacturing Systems Academic Information and Partnering Program; Washington, D.C.; September, 1992
Huray, Paul; University of South Carolina at Columbia, Columbia, SC 29208
DDM 9221871 A000; 09/15/1992; $34,188; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $34,188

Research Initiation Award: A Decision Analysis Approach to Some Important Topics in Quality Assurance
Irony, Telba; George Washington University, Washington, DC 20052
DDM 9209344 A000; 08/01/1992; $30,585; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $15,292

Joint US/German Conference on New Directions for Operations Research in Manufacturing; June 25-26, 1992; Hagen, Germany
Jones, Albert; Gulledge, Thomas; National Institute of Standards and Technology, Gaithersburg, MD 20899
DDM 9217855 A000; 08/01/1992; $10,000; 6 mo.
Jointly Funded with COMPUTER INTEGRATED ENGINEERNG $10,000

Algorithmic Aspects of Matrix Scaling and Related Problems
Kalantari, Bahman; Khachiyan, Leonid; Rutgers University-New Brunswick, New Brunswick, NJ 08903
CCR 9208371 A000; 08/15/1992; $95,444; 12 mo.
Jointly Funded with THEORY OF COMPUTING $20,000

Network Location Problems: Aggregation and Approximation
Lowe, Timothy; Francis, Richard; University of Iowa, Iowa City, IA 52242
DDM 9023392 A001; 06/01/1991; $48,443; 12 mo.

Interior Point Methods in Optimization
Mehrotra, Sanjay; Northwestern University, Evanston, IL 60208
CCR 9019469 A001; 06/15/1991; $54,957; 12 mo.
Jointly Funded with APPLIED MATHEMATICS $15,000

Computational Methods in Markov Chains
Meyer, Carl; Stewart, William; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 8906248 A003; 03/01/1990; $69,870; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS and NEW TECHNOLOGIES $25,000

Research Initiation: Sensitivity Analysis Approach in the Absence of an Optimal Basis and Its Application to the Framework of Interior Point Methods
Monteiro, Renato D.C.; University of Arizona, Tucson, AZ 85721
DDM 9109404 A001; 07/01/1991; $30,655; 12 mo.

Large-Scale Constrained Optimization
Murray, Walter; Saunders, Michael; Stanford University, Stanford, CA 94305
DDM 9204208 A000; 07/01/1992; $90,000; 12 mo.
Jointly Funded with NUMERIC AND SYMBOLIC COMPUTATION $38,077

Research in Mixed-Integer Programming
Nemhauser, George; Johnson, Ellis; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9115768 A000; 04/15/1992; $200,000; 12 mo.
Jointly Funded with AIR FORCE-RES IN MIXED INTGER and SPECIAL PROGRAMS $100,000

Fitting Low Order Phase-Type Distributions
O'Cinneide, Colm; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9203134 A000; 05/01/1992; $41,910; 12 mo.

Presidential Young Investigator Award: Parallel Algorithms for Integer and Mixed Integer Nonlinear Programs Arising in the Management and Design of Chemical Processes
Pekny, Joseph; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9058073 A003; 08/01/1990; $62,500; 12 mo.

Dynamic Planning Models for Common Carrier Operations
Powell, Warren; Lustig, Irvin; Princeton University, Princeton, NJ 08544
DDM 9102134 A001; 07/01/1991; $59,520; 12 mo.
DDM 9102134 A002; 07/01/1991; $10,000; 0 mo.

Research Initiation Award: Investigation in an Alternative Approach to Geometric Programming
Rajgopal, Jayant; University of Pittsburgh, Pittsburgh, PA 15260
DDM 9209935 A000; 08/15/1992; $29,843; 12 mo.

Theoretical and Computational Investigations in Integer Programming
Rao, Mendu; Conforti, Michele; New York University, New York, NY 10012
DDM 9001705 A001; 05/01/1991; $60,000; 12 mo.
Jointly Funded with APPLIED MATHEMATICS $15,000

Research Initiation: Developing Heuristics for Rank Reduction Algorithms for Large-Scale Markov Chains
Rieders, Maria; Northwestern University, Evanston, IL 60208
DDM 9211043 A000; 08/15/1992; $33,768; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $16,884

Analysis and Optimization of Product Form Stochastic Networks
Ross, Keith; University of Pennsylvania, Philadelphia, PA 19104
DDM 9000481 A003; 08/01/1990; $66,995; 12 mo.
Jointly Funded with PRODUCTION SYSTEMS $33,000

Mathematical Programming Under Uncertainty: Risk and Recourse Revisited
Sen, Suvrajeet; Higle, Julia; University of Arizona, Tucson, AZ 85721
DDM 9114352 A001; 09/01/1991; $80,463; 12 mo.

Stochastic Convexity in Queueing Networks and Its Applications
Shanthikumar, J. George; University of California-Berkeley, Berkeley, CA 94720
DDM 9113008 A000; 11/15/1991; $56,946; 12 mo.

A Reformulation-Linearization Technique with Application to Production, Location, Distribution, and Design Problems
Sherali, Hanif; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
DDM 9121419 A000; 09/15/1992; $50,201; 12 mo.

Presidential Young Investigator Award: Stability, Moments and Regenerative Simulation of Queueing Networks
Sigman, Karl; Columbia University, New York, NY 10027
DDM 8957825 A003; 07/01/1989; $25,000; 12 mo.

Infinite Horizon Optimization
Smith, Robert; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9214894 A000; 09/15/1992; $49,455; 12 mo.

Parallel and Large-Scale Nonlinear Programming
Sofer, Ariela; Nash, Stephen; George Mason University, Fairfax, VA 22030
DDM 9104670 A001; 06/01/1991; $59,971; 12 mo.

U.S.-France (INRIA) Cooperative Research: Parallel Numerical Methods for Transient Solutions of Markov Chains
Stewart, William; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
INT 9205155 A000; 06/15/1992; $42,250; 36 mo.

Mathematical Sciences: Combinatorial and Algebraic Geometry
Sturmfels, Bernd; Cornell University - Endowed, Ithaca, NY 14853
DMS 9201453 A000; 07/15/1992; $64,200; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS and NUMERIC AND SYMBOLIC COMPUTATION $20,000

Presidential Young Investigator Award: Efficient Algorithms in Combinatorial Optimization
Tardos, Eva; Cornell University - Endowed, Ithaca, NY 14853
DDM 9157199 A001; 08/01/1991; $62,500; 12 mo.

Computational and Mathematical Investigations in Optimization
Trotter, Leslie; Bland, Robert; Tardos, Eva; Todd, Michael; Cornell University - Endowed, Ithaca, NY 14853
DMS 8920550 A002; 08/01/1990; $239,999; 12 mo.
Jointly Funded with ONR $74,999

Dynamic, Concave-Cost, and Lattice Programming with Application to Inventory Control and Scheduling
Veinott, Arthur; Stanford University, Stanford, CA 94305
DDM 9215337 A000; 09/01/1992; $65,000; 12 mo.

Presidential Young Investigator Award: Mathematically Intractable Dynamic Scheduling
Wein, Lawrence; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9057297 A002; 09/01/1990; $62,500; 12 mo.

Optimal Capacity Expansion Under Uncertainty
Weisinger, James; Applied Decision Analysis Inc., Menlo Park, CA 94025
III 9160155 A000; 01/01/1992; $49,631; 6 mo.

Single-Server Multiple-Queue Systems
Wortman, Martin; Disney, Ralph; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
DDM 8913658 A002; 03/15/1990; $75,000; 12 mo.
DDM 8913658 A003; 03/15/1990; $4,110; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $4,110

Interior-Point Algorithms - Complexity Issues and Practical Concerns
Ye, Yinyu; University of Iowa, Iowa City, IA 52242
DDM 9207347 A000; 09/01/1992; $148,571; 36 mo.

Production Systems

Manufacturing Strategies for Multi-Product, Multi-Stage Production/Inventory Systems
Altiok, Tayfur; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
DDM 9014868 A001; 06/01/1991; $12,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $12,500
DDM 9014868 A002; 06/01/1991; $40,000; 12 mo.
DDM 9014868 A003; 06/01/1991; $1,312; 0 mo.

Small Grants for Exploratory Research: A Competitive Assessment of the United States Pharmaceutical Manufacturing
Altiok, Tayfur; Elsayed, E.; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
DDM 9123539 A000; 04/01/1992; $43,626; 18 mo.

Research Initiation Award: Parallel Approach to Simultaneous Optimization of Cell Layout and Intercell Material Flow Paths
Banerjee, Prashant; University of Illinois at Chicago, Chicago, IL 60680
DDM 9209849 A000; 08/15/1992; $31,380; 12 mo.

Engineering Faculty Internship: Transition from Batch Mode to Real Time Planning in Make-to-Order Printed Circuit Board Manufacturing
Banerjee, Prashant; University of Illinois at Chicago, Chicago, IL 60680
DDM 9214014 A000; 07/15/1992; $25,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $25,000

A Real-Time Knowledge-Based Simulation System for Diagnosing Machine Tool Failure
Banks, Jerry; Manivannan, Sundaravaradan; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9114621 A001; 09/01/1991; $50,889; 12 mo.

Combinational Mechanics and Stable Loading
Bartholdi, John; Ratliff, H. Donald; Vande Vate, John; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9101581 A001; 10/01/1991; $53,177; 12 mo.

Dispatching and Conflict-Free Routing of Free-Ranging Automated Guided Vehicles
Batta, Rajan; Karwan, Mark; SUNY at Buffalo, Amherst, NY 14228
DDM 9201405 A000; 07/15/1992; $52,403; 12 mo.

Research Planning Grant: Inference Techniques for Estimating the Variance of Means of Simulation Output Data
Bengu, Golgen; The Foundation at NJIT, Newark, NJ 07102
DDM 9214481 A000; 08/15/1992; $18,000; 18 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $9,000

Research Initiation: Point-and-Direct Strategic Control in Manufacturing
Cannon, David; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9209583 A000; 08/15/1992; $39,800; 12 mo.

Research Initiation Award: Resource Allocation in Queueing and Inventory Systems
Chao, Xiuli; The Foundation at NJIT, Newark, NJ 07102
DDM 9209526 A000; 09/15/1992; $25,000; 12 mo.

Workshop on Apparel Manufacturing Improvement; March 24, 1992; Miami, FL
Chen, Chin-Sheng; Swift, Fred; Racine, Raymond; Nunez, German; Florida International University, Miami, FL 33199
DDM 9206375 A000; 03/15/1992; $13,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $6,500

RUI: Capability Analysis for Production Processes
Chou, Youn-Min; University of Texas at San Antonio, San Antonio, TX 78285
DDM 9017123 A001; 06/01/1991; $50,004; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $25,002

A Framework for an Integrated Decision Support System for Manufacturing Process Improvement
Cook, Deborah; Texas A&M University Research Foundation, College Station, TX 77843
DDM 9111291 A000; 11/15/1991; $18,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $18,000

Research Initiation: Kanban Controlled Serial Transfer Lines with Machine Failures and Limited Repair
Das, Tapas; University of South Florida, Tampa, FL 33620
DDM 9396005 A000; 09/01/1992; $30,000; 16 mo.

A Conceptual Design Environment for Manufacturing Engineering
de Witte, Paula; Knowledge Based Systems Inc., College Station, TX 778455424
III 9160529 A000; 01/15/1992; $49,829; 6 mo.

Intelligent Material Handling Systems: Design of Integrated Stockless and Distribution System for the Healthcare Industry
Egbelu, Pius; Harmonosky, Catherine; Medeiros, Deborah; Sommer, H. Joseph; O'Brien, William; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9114149 A000; 11/15/1991; $173,389; 12 mo.
Jointly Funded with COMPUTER INTEGRATED ENGINEERNG $50,000

Product Line and Production Planning in an Environment of High Product Variety
Fisher, Marshall; Jain, Anjani; University of Pennsylvania, Philadelphia, PA 19104
SES 9109798 A001; 09/15/1991; $50,000; 12 mo.

Theoretical and Empirical Study of World Class Manufacturing
Flynn, Barbara; Flynn, E.; Iowa State University, Ames, IA 50011
SES 9122499 A000; 06/15/1992; $20,000; 12 mo.

Automatic Plant Layout Design with Unequal Department Size, Fixed Shape, and Location Dependent Construction Cost
Foote, Bobbie; Pulat, Pakize; Cheung, John; University of Oklahoma-Norman Campus, Norman, OK 73019
DDM 9102993 A001; 07/01/1991; $90,000; 12 mo.
Jointly Funded with ENGINEERING DESIGN $32,500

SGER: Strengthening Industrial Competitiveness Through More Effective Integration of Management Functions; United States and Japanese Needs and Experience
Gold, Bela; Claremont Graduate School, Claremont, CA 91711
DDM 9206404 A000; 09/01/1992; $9,500; 15 mo.

Supervisory Control in Automated Manufacturing Processes: The Design of Human-Computer Interaction for "Lights-Out Factories"
Govindaraj, Thiruvenkatasa; McGinnis, Leon; Mitchell, Christine; Platzman, Loren; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9102370 A001; 06/01/1991; $61,193; 12 mo.

Materials Handling Research Colloquium II; Milwaukee, Wisconsin; June 1992
Graves, Robert; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 9121434 A000; 12/01/1991; $12,500; 12 mo.

Small Grants for Exploratory Research: Dynamic Abstraction Mechanisms for Simulation Environments
Haddock, Jorge; Spooner, David; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 9200517 A000; 08/01/1992; $32,199; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $16,100

Hierarchical Planning in a Pull Production Environment
Hopp, Wallace; Spearman, Mark; Zazanis, Michael; Northwestern University, Evanston, IL 60208
SES 9119621 A000; 06/15/1992; $50,000; 12 mo.

Develop a Theoretical Model of Information Requirements in Concurrent Manufacturing Systems
Hsu, Cheng; Rattner, Laurie; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 9015277 A001; 07/15/1991; $50,000; 12 mo.
Jointly Funded with ENGINEERING DESIGN $25,000

Intelligent Material Handling Systems: Intelligent Dynamic Control of Automated Guided Vehicle (AGV) Systems
Interrante, Leslie; Messimer, Sherri; University of Alabama in Huntsville, Huntsville, AL 35899
DDM 9113983 A001; 09/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
DDM 9113983 A002; 09/15/1991; $1,243; 0 mo.
DDM 9113983 A003; 09/15/1991; $22,857; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and ROBOTICS AND MACHINE INTELLIGE $22,857

Presidential Young Investigator Award: Design and Development of a Manufacturing Enterprise Architecture
Jayaraman, Sundaresan; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 8957861 A004; 10/01/1989; $62,500; 12 mo.

Presidential Young Investigator Award: Models and Methodology for Design and Development of Flexible Manufacturing Systems Control Software
Joshi, Sanjay; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9158042 A001; 08/15/1991; $77,445; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $7,445

Concurrent Prediction of Technology and Human Skills Requirements for Advanced Manufacturing Technologies
Koubek, Richard; Salvendy, Gavriel; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9215703 A000; 09/15/1992; $94,359; 12 mo.
Jointly Funded with COMPUTER INTEGRATED ENGINEERNG $40,000

Modeling, Design, and Analysis of Control Algorithms for Scheduling Manufacturing Systems
Kumar, P.; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9025007 A001; 09/01/1991; $60,000; 12 mo.

Statistical Inference on Part Geometry
Kurfess, Thomas; Banks, David; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9201898 A000; 09/01/1992; $50,003; 12 mo.

Decision Support System for Dynamic Job Shop Scheduling
Lee, Chung-Yee; University of Florida, Gainesville, FL 32611
DDM 9201627 A000; 07/01/1992; $40,000; 12 mo.

Research Initiation: Economies of Production Through Duplicating Bottleneck Machines and Subcontracting Bottleneck Parts in Cellular Manufacturing
Logendran, Rasaratnam; Oregon State University, Corvallis, OR 97331-5503
DDM 9108507 A001; 07/15/1991; $24,004; 12 mo.

Practical Scheduling of Manufacturing Systems
Luh, Peter; Pattipati, Krishna; Hoitomt, Debra; University of Connecticut, Storrs, CT 06268
DDM 9119074 A000; 05/15/1992; $89,997; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $29,997

Development of a Complex Manufacturing Floor Material Handling System Using Guide-Path Independent Autonomous Vehicles
Luo, Ren; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 9102048 A001; 08/01/1991; $60,000; 12 mo.
Jointly Funded with ROBOTICS AND MACHINE INTELLIGE $10,000

Modeling and Analysis of Global Vision for Operating Multiple Free-Ranging AGVs on the Factory Floor
Luo, Ren; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 9202792 A000; 10/01/1992; $13,509; 12 mo.
Jointly Funded with SPECIAL PROGRAMS and COMPUTER INTEGRATED ENGINEERNG $988

Asymptotically Reliable Serial Production Lines: A System-Theoretic Approach
Meerkov, Semyon; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9105086 A001; 09/01/1991; $50,000; 12 mo.

Engineering Faculty Internship: Productivity and Quality Improvement Through Ergonomics Initiatives
Merritt, Thomas; Peguese, Joseph; Loebler, Erwin; The University of Alabama, Tuscaloosa, AL 35487-2856
DDM 9213645 A000; 06/15/1992; $8,540; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $8,540

Research Initiation: Economic Determination of Specification Levels and Delivery Priorities for Semiconductor Products
Min, Kyung Jo; Iowa State University, Ames, IA 50011
DDM 9110945 A001; 08/01/1991; $5,250; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,937
DDM 9110945 A002; 08/01/1991; $28,330; 12 mo.

European, CIM Research Site Visitations to Access Potential for ESPRIT/NSF Research Collaboration
Moodie, Colin; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9123984 A000; 01/01/1992; $46,538; 4 mo.
Jointly Funded with SPECIAL PROGRAMS $16,538

Properties of Streams of Data Packets
Neuts, Marcel; University of Arizona, Tucson, AZ 85721
DDM 8915235 A002; 04/15/1990; $110,000; 12 mo.
Jointly Funded with PROBABILITY and NETWORKING AND COMMUN RES PROGRM $64,000

Engineering Faculty Internship: Internship in Collaborative Integration of Distributed Manufacturing Engineering
Nof, Shimon; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9214143 A000; 08/01/1992; $24,960; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $24,960

Engineering Faculty Internship: Computer Interated Statistical Process Control System for Surface Mount Technology (SMT) Circuit Board Production
Okogbaa, O. Geoffrey; Borkes, Tom; University of South Florida, Tampa, FL 33620
DDM 9113846 A001; 07/15/1991; $1,003; 0 mo.
DDM 9113846 A002; 07/15/1991; $10,281; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and SPECIAL PROGRAMS $7,640

Intelligent Material Handling Systems: An Enabling Environment for Design and Control of Intelligent Material Handling Systems
Palekar, Udatta; Ferreira, Placid; Kapoor, Shiv; Tsao, Tsu-Chin; Hutchinson, Seth; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 9114001 A001; 09/15/1991; $151,871; 12 mo.
Jointly Funded with STRUCT SYSTS AND CONSTRCT PROCES and ROBOTICS AND MACHINE INTELLIGE $100,000

Structural Properties and Algorithms for Flow Line Scheduling
Pinedo, Michael; Fraiman, Nelson; Columbia University, New York, NY 10027
DDM 9101179 A001; 07/15/1991; $50,082; 12 mo.

Presidential Young Investigator Award: Instruments for Measuring Exposure to Repetitive Manual Work
Radwin, Robert; University of Wisconsin-Madison, Madison, WI 53706
DDM 9158136 A001; 09/01/1991; $5,000; 0 mo.
DDM 9158136 A002; 09/01/1991; $62,500; 12 mo.

Research Initiation: Multivariate Cost of Poor Quality Loss Functions for Manufacturing Operations Evaluation and Analysis
Raiman, Laura; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9209824 A000; 09/15/1992; $29,276; 12 mo.

A Fiber-Optic-Based Protocol for Manufacturing System Networking
Ray, Asok; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9015173 A001; 07/01/1991; $37,997; 12 mo.

Analysis and Optimization of Product Form Stochastic Networks
Ross, Keith; University of Pennsylvania, Philadelphia, PA 19104
DDM 9000481 A003; 08/01/1990; $66,995; 12 mo.

Scheduling Semiconductor Manufacturing Lines
Roundy, Robin; Cornell University - Endowed, Ithaca, NY 14853
DDM 9201704 A000; 08/15/1992; $48,367; 12 mo.

Automated Experimentation and Analysis for Robust Product Design
Sanchez, Susan; University of Arizona, Tucson, AZ 85721
DDM 9110573 A000; 01/01/1992; $59,996; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $59,996

Group Travel Grant to 1992 IEEE International Conference on Robotics and Automation; to be held May 11-15, in Nice, France
Sanderson, Arthur; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
MSS 9203431 A000; 03/15/1992; $31,490; 12 mo.
Jointly Funded with SYSTEMS THEORY $4,000

Theoretical and Empirical Study of World Class Manufacturing
Schroeder, Roger; Sakakibara, Sadao; University of Minnesota-Twin Cities, Minneapolis, MN 55415
SES 9122482 A000; 06/15/1992; $30,072; 12 mo.

Real-Time Distributed Production Control Methods Based on Continuous Flow Models
Sharifnia, Ali; Boston University, Boston, MA 02215
DDM 9215683 A000; 09/01/1992; $56,377; 12 mo.

Assessment of Research and Development in Japan and Europe
Shelton, R. Duane; Loyola College in Maryland, Baltimore, MD 21210
ENG 9111333 A002; 08/01/1991; $448,750; 0 mo.
Jointly Funded with OCEAN ENGINEERING SYSTEMS and SEPAR AND PURIFICATION PROCESSES $70,000

Research Initiation: Capacity Expansion and Replacement in an Uncertain Dynamic Technological Environment
Singh, Medini; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9210723 A000; 08/15/1992; $59,862; 24 mo.

An Integrated Design-Aid Tool for Flexible Assembly Systems
Stecke, Kathryn; Lee, Heungsoon; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9201954 A000; 09/15/1992; $65,115; 12 mo.

Studies on Learning to Extend and Improve Scheduling Algorithms for Batch Chemicals Production
Stephanopoulos, George; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9012826 A001; 07/01/1991; $60,000; 12 mo.

Use of Continuous Flow Models to Enable Rapid Analysis and Optimization of Discrete Production Lines
Suri, Rajan; University of Wisconsin-Madison, Madison, WI 53706
DDM 9201813 A000; 07/01/1992; $43,600; 12 mo.

RUI: Spatial Models for Improving Integrated Circuit Manufacturing Processes
Taam, Winson; Oakland University, Rochester, MI 48309-4401
DDM 9214944 A000; 09/15/1992; $29,510; 12 mo.

Small Grants for Exploratory Research: Distributed Flow Control of Intelligent Pallets
Tanchoco, J.M.A.; Cipra, Raymond; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9121430 A000; 12/15/1991; $47,971; 12 mo.
Jointly Funded with COMPUTER INTEGRATED ENGINEERNG and ROBOTICS AND MACHINE INTELLIGE $30,000

Engineering Faculty Internship: Concurrent Design and Evaluation of a Family of Material Handling Containers
Taylor, Gaylon Don; University of Arkansas-Main Campus, Fayetteville, AR 72701
DDM 9213766 A000; 07/01/1992; $22,606; 16 mo.
Jointly Funded with SPECIAL PROGRAMS $22,606

Presidential Young Investigator Award: Manufacturing Life-Cycle Analysis; The Integrated Design of Manufacturing Systems
Tirupati, Devanath; University of Texas at Austin, Austin, TX 78712
DDM 8957189 A004; 09/01/1989; $62,500; 12 mo.

NSF Young Investigator: Development of New Statistical Methods for Quality and Productivity Improvement
Tsui, Kwok-Leung; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9257918 A000; 09/01/1992; $25,000; 12 mo.

Research Initiaiton: Scheduling Complex Dynamic Job Shops
Uzsoy, Reha; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9107591 A001; 08/01/1991; $3,096; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $3,096

Engineering Faculty Internship: Developing Knowledge-Based Systems
Vassiliadis, Constantinos; Allen, Don; Ohio University, Athens, OH 45701
DDM 9213711 A000; 06/15/1992; $18,292; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $18,292

Presidential Young Investigator Award: Computer Vision Inspection of Polygonal Profiles
Ventura, Jose; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9057066 A002; 08/15/1990; $6,250; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $6,250

Presidential Young Investigator Award: Computer Vision Inspection of Polygonal Profiles
Ventura, Jose; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9057066 A003; 08/15/1990; $62,500; 12 mo.

Heuristics for Stochastic Scheduling and the Control of Queueing Networks
Weiss, Gideon; Georgia Tech Research Corporation - GA Tech Research Institute, Atlanta, GA 30332
DDM 8914863 A003; 03/01/1990; $105,894; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,100

Design and Operation of Assembly Systems
Wilhelm, Wilbert; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
DDM 9114396 A001; 09/15/1991; $66,753; 0 mo.
DDM 9114396 A002; 09/15/1991; $85,000; 12 mo.

A 3-D/4-D Computerized Model for Human-Machine Integration in Apparel Manufacturing Engineering
Willett, Shirley; Stylometrics Inc., Quincy, MA 02170
III 9161096 A000; 01/01/1992; $50,000; 6 mo.

Research Initiation: A Cognitive Engineering Based Approach to the Interface Design of Decision Support Systems for Machine Fault Diagnosis
Ye, Nong; Wright State University, Dayton, OH 45435
DDM 9210523 A000; 09/15/1992; $40,000; 12 mo.

Presidential Young Investigator Award: Supervisory Control of a Biped Robot
Zheng, Yuan; Ohio State University Research Foundation, Columbus, OH 43210
DDM 8996238 A003; 07/16/1989; $62,500; 12 mo.

Special Programs

A System for Micro-Mechanical Spring Design
Antonsson, Erik; Tai, Yu-Chong; California Institute of Technology, Pasadena, CA 91125
ECS 9023646 A001; 08/15/1991; $75,260; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $37,630

Engineering Faculty Internship: Transition from Batch Mode to Real Time Planning in Make-to-Order Printed Circuit Board Manufacturing
Banerjee, Prashant; University of Illinois at Chicago, Chicago, IL 60680
DDM 9214014 A000; 07/15/1992; $25,000; 12 mo.

STRATMAN: A Generic Architecture for Intelligent Networked Colocation in Concurrent Engineering
Bowen, J.A.; Bahler, Dennis; Franzon, Paul; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 9215755 A000; 10/01/1992; $599,986; 36 mo.
Jointly Funded with DEFENSE $599,986

Cutting Planes for Mixed-Integer Programs
Boyd, E. Andrew; William Marsh Rice University, Houston, TX 77252
DDM 9101578 A001; 07/15/1991; $67,087; 12 mo.
Jointly Funded with NAVY-CUTTING PLANES MIXED INTE $33,430

Computational Modeling of Transport Phenomena and Electromechanical Dynamics in Microscales
Cho, Dongil; Karniadakis, George; Princeton University, Princeton, NJ 08544
ECS 9023760 A001; 07/15/1991; $153,271; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $76,637

RUI: Capability Analysis for Production Processes
Chou, Youn-Min; University of Texas at San Antonio, San Antonio, TX 78285
DDM 9017123 A001; 06/01/1991; $50,004; 12 mo.

RUI: Queueing Theory and Some of Its Applications in Computer Science and Engineering
Cooper, Robert; Niu, Shun-Chen; Solomon, Martin; Florida Atlantic University, Boca Raton, FL 33431
DDM 9001751 A001; 03/01/1991; $73,797; 12 mo.

Engineering Faculty Internship: Mechatronic Design and Construction of a Materials Handling Test Apparatus
Craig, Kevin; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DDM 9213542 A000; 06/15/1992; $24,208; 12 mo.

Engineering Faculty Internship: Direct Engineering in the Automotive Industry
Crawford, Richard; Sferro, Peter; University of Texas at Austin, Austin, TX 78712
DDM 9213684 A000; 06/15/1992; $19,973; 12 mo.

Small Grants for Exploratory Research (SGER): Prototype Development for Russian-American Standards Program in Manufacturing
Freeman, H. Jo Anne; California Polytechnic State University Foundation, San Luis Obispo, CA 93401
DDM 9222865 A000; 09/15/1992; $50,000; 12 mo.

STRATMAN: The Role of Grinding Protocol on Cam Service Life
Hendricks, Robert; Dowling, Norman; Eiss, Norman; Landgraf, Ronald; Lavine, Adrienne; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
DDM 9215629 A000; 10/01/1992; $599,980; 36 mo.
Jointly Funded with DEFENSE $599,980

Cooperative Agreement: Research in Precision Engineering
Hocken, Robert; Raja, Jayaraman; Shelnutt, James; Trumper, David; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 9114710 A002; 10/01/1991; $200,149; 12 mo.

National Science Foundation - Division of Design and Manufacturing Systems Grantees Conference; Charlotte, North Carolina; January 6-8, 1993
Hocken, Robert; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 9212644 A000; 06/01/1992; $97,532; 12 mo.

Workshop on Intelligent Manufacturing Systems Academic Information and Partnering Program; Washington, D.C.; September, 1992
Huray, Paul; University of South Carolina at Columbia, Columbia, SC 29208
DDM 9221871 A000; 09/15/1992; $34,188; 12 mo.

Microstructural Modeling and Probabilistic Prediction of Micro-Electro-Mechanical Systems Response
Johnson, George; Der Kiureghian, Armen; Ferrari, Mauro; University of California-Berkeley, Berkeley, CA 94720
ECS 9023714 A001; 08/01/1991; $187,606; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $93,802

Presidential Young Investigator Award: Models and Methodology for Design and Development of Flexible Manufacturing Systems Control Software
Joshi, Sanjay; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9158042 A001; 08/15/1991; $77,445; 12 mo.
Jointly Funded with PRODUCTION SYSTEMS $14,945

Theoretical Modeling of Micro-Electromechanical Systems
Ko, Wen; Hoffman, Richard; Mehregany, Mehran; Mullen, Robert; Case Western Reserve University, Cleveland, OH 44106
ECS 9023711 A001; 06/15/1991; $104,320; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $45,000

Quality Through Engineering Design, a U.S.-India-Japan Conference, Bangalore, India, February 1992, Group Travel Award - Supplement
Kuo, Way; Bowman, K.; Iowa State University, Ames, IA 50011
INT 9017040 A002; 05/01/1991; $10,000; 0 mo.
Jointly Funded with NATL INST OF STANDARD AND TECH $10,000

Assistance for International Experts to Participate in and Partial Support for Planning of MI'92, the Manufacturing International Conference in 1992
Ling, Frederick; Institute for Productivity Research, New York, NY 10018
DDM 9103885 A001; 07/01/1991; $37,500; 0 mo.
Jointly Funded with NAVY $11,000

Modeling and Analysis of Global Vision for Operating Multiple Free-Ranging AGVs on the Factory Floor
Luo, Ren; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 9202792 A000; 10/01/1992; $13,509; 12 mo.
Jointly Funded with COMPUTER INTEGRATED ENGINEERNG $988

Historical Review of Research on Machining and Grinding in the United States
Merchant, M. Eugene; Institute of Advanced Manufacturing Sciences Inc., Cincinnati, OH 45216
DDM 9196034 A001; 09/01/1990; $6,520; 12 mo.

Engineering Faculty Internship: Productivity and Quality Improvement Through Ergonomics Initiatives
Merritt, Thomas; Peguese, Joseph; Loebler, Erwin; The University of Alabama, Tuscaloosa, AL 35487-2856
DDM 9213645 A000; 06/15/1992; $8,540; 12 mo.

European, CIM Research Site Visitations to Access Potential for ESPRIT/NSF Research Collaboration
Moodie, Colin; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9123984 A000; 01/01/1992; $46,538; 4 mo.
Jointly Funded with PRODUCTION SYSTEMS $31,538

Research in Mixed-Integer Programming
Nemhauser, George; Johnson, Ellis; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DDM 9115768 A000; 04/15/1992; $200,000; 12 mo.
Jointly Funded with AIR FORCE-RES IN MIXED INTGER $100,000

Engineering Faculty Internship: Design-Oriented Model for Joints in Automotive Structures
Nikolaidis, Efstratios; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
DDM 9213644 A000; 08/01/1992; $21,000; 12 mo.

Engineering Faculty Internship: Internship in Collaborative Integration of Distributed Manufacturing Engineering
Nof, Shimon; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9214143 A000; 08/01/1992; $24,960; 12 mo.

Strategic Manufacturing Initiative: Constraint Nets for Life Cycle Engineering
O'Grady, Peter; Bahler, Dennis; Bowen, J.A.; Young, Robert; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DDM 8914200 A003; 10/01/1989; $100,000; 0 mo.

Engineering Faculty Internship: Computer Interated Statistical Process Control System for Surface Mount Technology (SMT) Circuit Board Production
Okogbaa, O. Geoffrey; Borkes, Tom; University of South Florida, Tampa, FL 33620
DDM 9113846 A002; 07/15/1991; $10,281; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $7,640

Research Areas in Manufacturing Unit Processes
Pollack, Kerstin; National Academy of Sciences, Washington, DC 20418
DDM 9022041 A001; 02/01/1991; $239,171; 12 mo.
Jointly Funded with SOLID MECHANICS $169,586
DDM 9022041 A002; 02/01/1991; $148,931; 0 mo.
Jointly Funded with DEFENSE $148,931

Engineering Faculty Internship: Production Optimization of Commercial Aircraft Fuselage Frames and Doors
Rajagopalan, Ramesh; Grady, Arthur; Mercer University, Macon, GA 31207
DDM 9213701 A000; 07/01/1992; $6,000; 12 mo.

Web Handling Research Center
Reid, Karl; Oklahoma State University, Stillwater, OK 74078
EEC 9023068 A002; 09/01/1990; $72,610; 12 mo.

STRATMAN: Automatic Design and Assembly of Fixtures Using Modular Components
Requicha, Aristides A.; Bekey, George; Goldberg, Kenneth; University of Southern California, Los Angeles, CA 90089
DDM 9215362 A000; 09/15/1992; $344,424; 36 mo.

Research Initiation: Developing Heuristics for Rank Reduction Algorithms for Large-Scale Markov Chains
Rieders, Maria; Northwestern University, Evanston, IL 60208
DDM 9211043 A000; 08/15/1992; $33,768; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $16,884

STRATMAN: Micro-Constructive Manufacturing
Sachs, Emanuel; Cima, Michael; Cornie, James; Gossard, David; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9215728 A000; 10/01/1992; $600,000; 36 mo.
Jointly Funded with DEFENSE $600,000

Engineering Faculty Internship: Reverse Engineering Representations of Shape
Schunck, Brian; Wu, Charles; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9213693 A000; 07/15/1992; $12,000; 12 mo.

Engineering Faculty Internship: Study of Turbulent Double-Diffusive Transport and Macrosegregation During Continuous Ingot Casting
Shyy, Wei; Backman, Daniel; University of Florida, Gainesville, FL 32611
DDM 9213568 A000; 08/01/1992; $15,000; 12 mo.

Research Planning Grant: Process Planning Using an Integrated Neural Network and Expert System Approach
Smith, Alice; University of Pittsburgh, Pittsburgh, PA 15260
DDM 9209424 A000; 09/01/1992; $18,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $9,000

Engineering Faculty Internship: Develop a Comprehensive Control System for Turning Centers
Stern, Elliot; Auburn University, Auburn, AL 36849
DDM 9214675 A000; 07/15/1992; $6,843; 12 mo.

Cooperative Agreement: Research in Processing Technology
Suh, Nam; Sharon, Andre; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 9115271 A001; 09/01/1991; $250,000; 12 mo.

Cooperative Research in Integrated Circuit Technology
Sumney, Larry; Semiconductor Research Corporation, Research Triangle Park, NC 27709
ECS 9105584 A003; 08/15/1991; $300,000; 0 mo.
Jointly Funded with DEFENSE NUCLEAR AGENCY $150,000

Engineering Faculty Internship: Development of Intelligent Gear Inspection System
Tansel, Ibrahim; Arch, Allan; Florida International University, Miami, FL 33199
DDM 9213770 A000; 07/15/1992; $25,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $25,000

Engineering Faculty Internship: Concurrent Design and Evaluation of a Family of Material Handling Containers
Taylor, Gaylon Don; University of Arkansas-Main Campus, Fayetteville, AR 72701
DDM 9213766 A000; 07/01/1992; $22,606; 16 mo.

Cooperative Agreement: Machine Tool Research
Tlusty, Jiri; Smith, Kevin Scott; Principe, Jose; Yeralan, Sencer; University of Florida, Gainesville, FL 32611
DDM 9114588 A001; 09/01/1991; $195,332; 12 mo.

NSF/DARPA Agreement for Use of DARPA VLSI Implementation
Toole, John; Department of Defense-Defense Advanced Research Projects Agency, Arlington, VA 22209
MIP 9015601 A002; 10/01/1990; $903,635; 12 mo.
Jointly Funded with EXPERIMENTAL SYSTEMS PROGRAM and CIRCUITS AND SIGNAL PROCESSING P $87,005

Research Planning Grant: Toward Simultaneous Engineering in the Toy Industry
Trappey, Amy J.C.; Iowa State University, Ames, IA 50011
DDM 9209153 A000; 08/15/1992; $18,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $9,000

Engineering Faculty Internship: Thermal Modeling of Open Die Forgings Using Microcomputer Programs
Van Tyne, Chester; Focht, Robert; Colorado School of Mines, Golden, CO 80401
DDM 9213630 A000; 07/15/1992; $10,000; 12 mo.

Engineering Faculty Internship: Developing Knowledge-Based Systems
Vassiliadis, Constantinos; Allen, Don; Ohio University, Athens, OH 45701
DDM 9213711 A000; 06/15/1992; $18,292; 12 mo.

STRATMAN: Development of a Science Base for Drills and Drill Grinding Processes
Wu, S.; Schunck, Brian; Woo, Tony; Ni, Jun; Sha, Jilun; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9215470 A000; 09/01/1992; $599,296; 36 mo.
Jointly Funded with DEFENSE $599,296

Research Initiation: Global Optimization Algorithms for Engineering Design
Zabinsky, Zelda; University of Washington, Seattle, WA 98195
DDM 9211001 A000; 07/15/1992; $30,309; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $15,000

Study on Materials for the 21st Century
Zwilsky, Klaus; National Academy of Sciences, Washington, DC 20418
DDM 9017571 A001; 03/01/1991; $29,903; 11 mo.
Jointly Funded with MATERIALS ENGINEERING $29,903

ELECTRICAL AND COMMUNICATIONS SYSTEMS

Communications and Computational Systems Program

Computational Engineering

A System for Micro-Mechanical Spring Design
Antonsson, Erik; Tai, Yu-Chong; California Institute of Technology, Pasadena, CA 91125
ECS 9023646 A001; 08/15/1991; $75,260; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $18,815

Presidential Young Investigator Award
Arabyan, Ara; University of Arizona, Tucson, AZ 85721
ECS 9057062 A002; 08/01/1990; $54,147; 12 mo.

Workshop on Riser Mechanics
Bernitsas, Michael; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 9221744 A000; 08/15/1992; $50,456; 6 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS $25,000

Serial and Parallel Computational Methods for Large Scale Problems
Bertsekas, Dimitri; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 8903385 A002; 03/01/1990; $56,008; 12 mo.
Jointly Funded with THEORY OF COMPUTING $15,000

Numerical Instrumentation for Shape and Shape Change Analysis via Three-Dimensional Microscopy
Bovik, Alan; Diller, Kenneth; University of Texas at Austin, Austin, TX 78712
BIR 9106624 A001; 09/15/1991; $150,000; 12 mo.
Jointly Funded with INSTRUMENTAT AND INSTRUMENT DEVP and ROBOTICS AND MACHINE INTELLIGE $130,000

Parallel Supercomputing at Caltech: Instrumentation Proposal
Bower, James; Messina, Paul; California Institute of Technology, Pasadena, CA 91125
BIR 9020463 A001; 07/01/1991; $320,000; 12 mo.

A Unified Approach Toward Optimal Computational Fluid Dynamics: Novel Multi-Processor Architectures and Smart Algorithms for Parallel Computation
Browne, James; University of Texas at Austin, Austin, TX 78712
ASC 9111540 A001; 10/01/1991; $30,000; 0 mo.

Presidential Young Investigator Award
Castillo, Steven; New Mexico State University, Las Cruces, NM 88003
ECS 9158504 A001; 10/01/1991; $35,000; 12 mo.

Computational Modeling of Transport Phenomena and Electro-Mechanical Dynamics in Microscales
Cho, Dongil; Karniadakis, George; Princeton University, Princeton, NJ 08544
ECS 9023760 A001; 07/15/1991; $153,271; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $38,320

Numerical Methods and Programming Environments for Complex Fluid Flows
Chorin, Alexandre; Berger, Stanley; Colella, Phillip; Hilfinger, Paul; Marcus, Philip; University of California-Berkeley, Berkeley, CA 94720
DMS 8919074 A002; 07/01/1990; $855,000; 12 mo.
Jointly Funded with DARPA $650,000

Mathematical Sciences: Analytical and Numerical Studies of Partial Differential Equations of Semiconductor Devices
Cole, Julian; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
DMS 9015878 A001; 03/15/1991; $75,000; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS $25,000

A National Center for Computational Electronics
Dutton, Robert; Stanford University, Stanford, CA 94305
ECS 9200560 A000; 08/01/1992; $100,000; 12 mo.

Presidential Young Investigator Award
Farhat, Charbel; University of Colorado at Boulder, Boulder, CO 80309
ECS 8957322 A003; 09/01/1989; $62,500; 12 mo.
Jointly Funded with NEW TECHNOLOGIES $31,250

High-Performance Computational Methods for Coupled Field Problems
Felippa, Carlos; University of Colorado at Boulder, Boulder, CO 80309
ASC 9217394 A000; 09/25/1992; $900,000; 12 mo.
Jointly Funded with NUMERIC AND SYMBOLIC COMPUTATION $100,000

NSF Young Investigator
Fish, Jacob; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
ECS 9257203 A000; 09/01/1992; $25,000; 12 mo.

Mathematical Sciences: Scientific Computing Research Environments for the Mathematical Sciences
Gedney, Stephen; Fairweather, Graeme; Finkel, Raphael; Tsang, Tate; McDonough, James; Kentucky Research Foundation, Lexington, KY 40506
DMS 9206014 A000; 06/15/1992; $93,975; 12 mo.
Jointly Funded with NEW TECHNOLOGIES $23,400

International Symposium on Boundary Element Methods; Boulder
Geers, Thomas; University of Colorado at Boulder, Boulder, CO 80309
MSS 9221080 A000; 08/01/1992; $5,000; 6 mo.

The Foundations of Genetic Algorithms
Goldberg, David; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9022007 A001; 08/15/1990; $10,000; 0 mo.

Modified Eigenvalue Problems, with Applicatin to Structural Dynamic Re-Analysis on Parallel Computers
Golub, Gene; Law, Kincho; Stanford University, Stanford, CA 94305
ECS 9003107 A001; 09/01/1990; $18,151; 0 mo.
Jointly Funded with STRUCT SYSTS AND CONSTRCT PROCES $18,151

REU: Parallelization of Monte Carlo Algorithms in Semi-Conductor Device Physics
Goodnick, Stephen; Lenders, Patrick; Oregon State University, Corvallis, OR 97331-5503
ECS 8821107 A005; 08/15/1989; $4,050; 0 mo.

RIA: A Knowledge-Based Approach to Adaptive Finite Element Analysis
Haghighi, Kamyar; Purdue University Research Foundation, West Lafayette, IN 47907
ECS 9211156 A000; 08/15/1992; $100,000; 24 mo.

REU: National Center for Computational Electronics
Hess, Karl; Ravaioli, Umberto; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 8809023 A006; 11/01/1988; $4,688; 0 mo.

A National Center for Computational Electronics
Hess, Karl; Ravaioli, Umberto; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9122768 A000; 08/15/1992; $147,894; 12 mo.
Jointly Funded with SOLID-STATE AND MICROSTRUCTURE RES and COMPUTATIONAL MATHEMATICS $75,000

International Workshop on Computational Electronics May 28-29,1992 at the Beckman Institute of the University of Illinois at Urbana-Champaign
Hess, Karl; Ravaioli, Umberto; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9207868 A000; 05/01/1992; $10,000; 6 mo.

DEDS: A New Paradigm for Performance Analysis, Computation and Optimization
Ho, Yu-Chi; Harvard University, Cambridge, MA 02138
EEC 9212122 A000; 09/15/1992; $365,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and SYSTEMS THEORY $352,500

2-D Implementation of Monte Carlo Program for High-Field, Ultrafast Studies of Semiconductors
Hsiang, Thomas; University of Rochester, Rochester, NY 14627
ECS 9203490 A000; 04/15/1992; $50,000; 12 mo.

Microstructural Modeling and Probabilistic Prediction of Micro-Electro-Mechanical Systems Response
Johnson, George; Der Kiureghian, Armen; Ferrari, Mauro; University of California-Berkeley, Berkeley, CA 94720
ECS 9023714 A001; 08/01/1991; $187,606; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $46,901

SGER: Dynamic Scheduling and Resource Allocation in Hetergeneous Computer Environments
Johnson, Mary; Palekar, Udatta; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9214844 A000; 08/15/1992; $48,328; 12 mo.
Jointly Funded with ADVANC SCIENT COMPUTING CENTRS $20,000

Superquest 1991-1994
Kalos, Malvin; Cornell University - Endowed, Ithaca, NY 14853
ASC 9102830 A001; 07/15/1991; $1,164,805; 0 mo.
Jointly Funded with DATABASES, SOFTWARE DEV AND COMP $40,586

Numerical Computation of Drag Reduction in Turbulent Flow Over Rough Walls
Karniadakis, George; Orszag, Steven; Princeton University, Princeton, NJ 08544
CTS 8914422 A003; 01/01/1990; $117,512; 12 mo.

Simulations of Systems with Spatio-Temporal Structure: A Model Reduction Approach for Complex Geometrics
Kevrekidis, Yannis; Karniadakis, George; Princeton University, Princeton, NJ 08544
ECS 9023362 A001; 07/01/1991; $92,441; 12 mo.

Presidential Young Investigator Award
Keyes, David; Yale University, New Haven, CT 06520
ECS 8957475 A004; 08/15/1989; $25,000; 0 mo.
ECS 8957475 A005; 08/15/1989; $62,500; 12 mo.

Theoretical Modeling of Micro-Electro-Mechanical Systems
Ko, Wen; Hoffman, Richard; Mehregany, Mehran; Mullen, Robert; Case Western Reserve University, Cleveland, OH 44106
ECS 9023711 A001; 06/15/1991; $104,320; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $22,500

RIA: Advanced Numerical Modeling of Semiconductor Devices
Korman, Can; George Washington University, Washington, DC 20052
ECS 9209341 A000; 09/01/1992; $100,000; 36 mo.
Jointly Funded with SOLID-STATE AND MICROSTRUCTURE RES $50,000

Numerical Methods for Particle Transport Problems
Larsen, Edward; Martin, William; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 9107725 A000; 05/01/1992; $104,749; 12 mo.

Large-Scale Computing in Control
Laub, Alan; University of California-Santa Barbara, Santa Barbara, CA 93106
ECS 9120643 A000; 08/01/1992; $70,000; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS $15,000

Presidential Young Investigator Award
Levin, Peter; Worcester Polytechnic Institute, Worcester, MA 01609
ECS 9158009 A002; 10/01/1991; $7,200; 0 mo.
ECS 9158009 A003; 10/01/1991; $80,000; 12 mo.

Space-Time Analysis and Visualization of Dynamical Systems Using Massively Parallel Computers
Long, Lyle; Thomopoulos, Stelios; Higgins, William; Pennsylvania State Univ.-University Park, University Park, PA 16801
ECS 9120278 A000; 08/01/1992; $85,000; 24 mo.

RIA: An Adaptive Spectral Element Method for the Solution of Transient Partial Differential Equations in Complex Geometries
Mavriplis, Catherine; George Washington University, Washington, DC 20052
ECS 9209347 A000; 09/01/1992; $100,000; 36 mo.

Computational Abstractions for Dynamic Nonlinear Analysis of Structures
Miller, Gregory; University of Washington, Seattle, WA 98195
MSS 9203140 A000; 05/15/1992; $38,268; 12 mo.

Presidential Young Investigator Awards
Parsons, Ian; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9157304 A001; 10/01/1991; $62,500; 12 mo.

Symbolic-Numeric Methods and Data Visualization Strategies for Scientific Concurrent Computation
Peskin, Richard; Walther, Sandra; Rutgers University-New Brunswick, New Brunswick, NJ 08903
ECS 9110424 A001; 09/01/1991; $8,000; 0 mo.
Jointly Funded with NUMERIC AND SYMBOLIC COMPUTATION $4,000
ECS 9110424 A002; 09/01/1991; $167,500; 12 mo.
Jointly Funded with NUMERIC AND SYMBOLIC COMPUTATION and COMPUTATIONAL MATHEMATICS $50,000

NSF Young Investigator Award
Peterson, Andrew; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9257927 A000; 08/15/1992; $25,000; 12 mo.

Continuation of Research on an Optimization-Based Methodology for Computer-Aided Design
Polak, Elijah; University of California-Berkeley, Berkeley, CA 94720
ECS 8916168 A002; 06/01/1990; $55,000; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS $15,000

Presidential Young Investigator Award
Powell, Kenneth; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 8857500 A004; 09/01/1988; $62,500; 12 mo.

SGER: Finite Difference Time Domain Techniques Applied to Periodic Problems in Electromagnetics
Pozar, David; University of Massachusetts-Amherst, Amherst, MA 01003
ECS 9122924 A000; 01/01/1992; $23,479; 12 mo.

Multi-Dimensional Computation of Electronic Properties of Semiconductor Microstructures of High Performance Heterojunction Devices
Ravaioli, Umberto; Leburton, Jean-Pierre; Kerkhoven, Thomas; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9120641 A000; 03/15/1992; $147,172; 12 mo.

Region Segmentation by Time Series Analysis
Rogowska, Jadwiga; Massachusetts General Hospital, Boston, MA 02101
ECS 9214839 A000; 09/01/1992; $26,000; 24 mo.

MRI: Finite Element Analysis of High Speed InP/no.53 GaO.47 as P-I-N Photodetector Structures
Russell, Jimmie; Ohio State University Research Foundation, Columbus, OH 43210
ECS 9111257 A000; 05/15/1992; $150,000; 36 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $112,500

A Distributed Computational System for Large Scale Environmental Modeling
Russell, Armistead; McRae, Gregory; Bruegge, Bernd; Steenkiste, Peter; Carnegie-Mellon University, Pittsburgh, PA 15213
ASC 9217365 A000; 10/01/1992; $500,000; 12 mo.
Jointly Funded with NUMERIC AND SYMBOLIC COMPUTATION $100,000

Computational Methods in Radiative Heat Transfer
Siewert, Charles; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
ECS 9100116 A000; 04/01/1992; $50,000; 12 mo.
Jointly Funded with THERMAL TRANSPORT AND PROCESSING $25,000

Image Reconstruction from Cone-Beam Projections
Smith, Bruce; Murio, Diego; University of Cincinnati-Main Campus, Cincinnati, OH 45221
ECS 9112810 A000; 08/15/1992; $143,151; 24 mo.
Jointly Funded with POWER SYSTEMS $70,000

Digital Image Processing Techniques for Flow Field Analysis and Interpretation
Strickland, Robin; University of Arizona, Tucson, AZ 85721
ECS 9009458 A001; 03/15/1991; $98,036; 12 mo.

Control of the Errors of Idealization in Design Computations
Szabo, Barna; Washington University, St. Louis, MO 63130
DDM 8917736 A002; 06/01/1990; $70,000; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS $35,000

Reconstruction Techniques for Limited-Data Tomography of Turbulent Fields
Watt, David; University of New Hampshire-Durham, Durham, NH 03824
ECS 8910350 A003; 09/01/1989; $51,228; 12 mo.

Electromechanical Finite Element Models for Ultrasound Transducer Analysis and Design
Wojcik, Gregory; Weidlinger Associates, Los Altos, CA 94022
III 9161050 A000; 01/15/1992; $49,886; 6 mo.

A Computer-Based Testbed for Novel Integrated Antenna Design
Wu, Doris; Boulder Microwave Technologies Inc., Boulder, CO 80302
III 9161175 A000; 01/01/1992; $50,000; 6 mo.

Engineering Research Center for the Carnegie Mellon Data Storage Systems Center
Kryder, Mark; Carnegie-Mellon University, Pittsburgh, PA 15213
EEC 8907068 A005; 04/15/1990; $2,470,565; 12 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS and HUMAN RESOURCES DEVELOPMENT $45,000

Symbolic-Numeric Methods and Data Visualization Strategies for Scientific Concurrent Computation
Peskin, Richard; Walther, Sandra; Rutgers University-New Brunswick, New Brunswick, NJ 08903
ECS 9110424 A002; 09/01/1991; $167,500; 12 mo.
Jointly Funded with NUMERIC AND SYMBOLIC COMPUTATION and COMPUTATIONAL MATHEMATICS $50,000

Optical Communications Initiative

Fundamental Limits to the Performance of InP-Based Monolithic Integrated Receivers
Forrest, Stephen; University of Southern California, Los Angeles, CA 90089
ECS 9014701 A001; 04/01/1991; $1,994; 15 mo.

Fundamental Limits to the Performance of InP-Based Monolithic Integrated Receivers
Forrest, Stephen; Princeton University, Princeton, NJ 08544
ECS 9296223 A000; 07/01/1992; $157,184; 8 mo.

Photobleachable Host-Guest Thin Films for Optical Waveguides
Halpern, Bret; Jet Process Corporation, New Haven, CT 06511
III 9160294 A000; 01/15/1992; $50,000; 6 mo.

Picosecond Optical Signal Sampling Device
Haus, Hermann; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9012787 A001; 12/01/1990; $78,200; 12 mo.

Optical Microstructures and Their Application to Spontaneous Emission Inhibition and Semiconductor Micro-Lasers (Research Initiation Award)
Ho, Seng; Northwestern University, Evanston, IL 60208
ECS 9210434 A000; 10/01/1992; $55,332; 36 mo.

Presidential Young Investigator Award
Kahn, Joseph M.; University of California-Berkeley, Berkeley, CA 94720
ECS 9157089 A001; 08/01/1991; $37,500; 0 mo.
ECS 9157089 A002; 08/01/1991; $62,500; 12 mo.

Integration of Substrate-Mode Diffractive Optical Interconnects with Board Level Electronic Processing Systems
Kostuk, Raymond; University of Arizona, Tucson, AZ 85721
ECS 9109954 A000; 01/15/1992; $75,739; 12 mo.

PYI: Optical Network Based on Pulse-Modulated Subcarrier Multiplexed Transmission
Lau, Kam Yin; University of California-Berkeley, Berkeley, CA 94720
ECS 9196076 A001; 10/01/1990; $62,500; 12 mo.

Cross Linking the Electron and Photon Wave Devices
Liu, Pao-Lo; SUNY at Buffalo, Buffalo, NY 14260
ECS 9200561 A000; 09/15/1992; $75,000; 12 mo.

ER:TI:LiNbO3 Guided Wave Integrated Optic Amplifier
McCaughan, Leon; University of Wisconsin-Madison, Madison, WI 53706
ECS 9204852 A000; 09/15/1992; $105,000; 12 mo.

Architectures for Multichannel Optical Fiber Communication Using Arrays of Surface Normal Devices
McInerney, John; Cheng, Julian; Malloy, Kevin; Naqvi, S. Sohail; University of New Mexico, Albuquerque, NM 87131
ECS 9015735 A002; 08/01/1990; $211,419; 12 mo.

Solitons in Communication and Switching Systems
Menyuk, Curtis; University of Maryland-Baltimore County, Baltimore, MD 21228
ECS 9113382 A001; 09/01/1991; $99,326; 12 mo.

Characterization of Optical Waveguides Produced in Silica Glass by Electron Beam Irradiation (Research Initiation Grant)
Patterson, David; Illinois Institute of Technology, Chicago, IL 60616
ECS 9211018 A000; 08/15/1992; $100,000; 36 mo.

Novel Optical Interconnection Networks Using Optoelectronic Integrated Circuits
Sawchuk, Alexander; Forrest, Stephen; University of Southern California, Los Angeles, CA 90089
ECS 9015797 A002; 10/01/1990; $203,119; 12 mo.

Erbium-Doped Fiber Amplifiers
Sunak, Harish; University of Rhode Island, Kingston, RI 02881
ECS 9111419 A001; 08/15/1991; $60,000; 12 mo.
Jointly Funded with ARMY-ERBIUM DOPED AMPLIFIERS $10,000

Transparent Electrodes Vertical Cavity Surface Emitting Laser Modules for Optical Communications and Signal Processing Applications
Van Hove, Jim; APA Optics Inc., Blaine, MN 55434
III 9160508 A000; 01/15/1992; $49,945; 6 mo.

Lossless Acoustooptic Permutation and Interconnection Network
Wagner, Kelvin; Mickelson, Alan; Weverka, Robert; University of Colorado at Boulder, Boulder, CO 80309
ECS 9015752 A003; 09/01/1990; $11,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,500
ECS 9015752 A004; 09/01/1990; $199,525; 12 mo.

NSF Young Investigator: Optical Fiber-Communications Systems for High Speed Photonic Networks
Willner, Alan; University of Southern California, Los Angeles, CA 90089
ECS 9258150 A000; 08/15/1992; $25,000; 12 mo.

Rare Earth-Doped Waveguide Lasers
Winick, Kim; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 9201079 A000; 09/01/1992; $80,000; 12 mo.

Study of Optical Carrier and Subcarrier Noise Properties for Fiber-Optic Links - (Research Equipment Grant)
Yu, Kit-Lai; University of California-San Diego, San Diego, CA 92093
ECS 9212289 A000; 09/01/1992; $58,346; 12 mo.

Emerging Technologies Initiation Program

Low-Cost Technologies for Microelectromechanical Systems
Allen, Mark; Rohatgi, Ajeet; Jokerst, Nan; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9117074 A001; 08/15/1991; $192,722; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $32,722

Synthesis of Nanometer Diameter Particles and Measurement of Particle-Particle and Particle Substrate Interactions
Andres, R.; Reifenberger, R.; Talbot, Julian; Purdue University Research Foundation, West Lafayette, IN 47907
ECS 9117691 A000; 05/15/1992; $338,010; 36 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $130,000

Nanocrystalline Materials Prepared by Spark Erosion
Berkowitz, Ami; Meyers, Marc; Maple, M. Brian; University of California-San Diego, San Diego, CA 92093
ECS 9119005 A001; 10/01/1991; $151,607; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $20,000

High Volume Production of Ultrafine Particles
Brock, James; Becker, Michael; Keto, John; University of Texas at Austin, Austin, TX 78712
ECS 9119043 A000; 05/15/1992; $338,000; 36 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $129,990

Development of a Synergistic Millimeter-Wave/Optical Pollution Monitoring Facility for Research and Training.
Fung, Adrian; Klemer, David; Bredow, Jonathan; University of Texas at Arlington, Arlington, TX 76019
ECS 9214363 A000; 08/15/1992; $407,760; 60 mo.
Jointly Funded with ACADEMIC RESEARCH FACILITIES $407,760

Acquisition of Test Equipment to Characterize Structural Composites
GangaRao, Hota; Halabe, Udaya; West Virginia University Research Corporation, Morgantown, WV 26506
ECS 9214557 A000; 08/15/1992; $150,000; 24 mo.
Jointly Funded with ACADEMIC RESEARCH FACILITIES $150,000

Research on Micromechanics and Micromagnetics Based on X-Ray Lithography and Electrodeposition of Metal Structures
Guckel, Henry; Chapman, Thomas; Lovell, Edward; University of Wisconsin-Madison, Madison, WI 53706
ECS 9116566 A001; 09/01/1991; $200,000; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $40,000

Controlled Production of Ultrafine Particles Using Microemulsion and Ceramic Synthesis Technologies
Hatton, T. Alan; Cima, Michael; Bawendi, Moungi; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9118907 A001; 09/01/1991; $199,670; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $20,000

Investigation of Nanoparticle Formation Using a Plasma Expansion Process
Heberlein, Joachim; McMurry, Peter; Girshick, Steven; Martins, Jose' L.; University of Minnesota Institute of Technology, Minneapolis, MN 55455
ECS 9118100 A001; 10/01/1991; $200,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC and COMBUSTION AND THERMAL PLASMAS $30,000

Construction and Evaluation of Self-Luminescent Biosensors
Holmes, David; Wnek, Gary; Korenowski, Gerald; Clarkson University, Potsdam, NY 13676
ECS 9048623 A002; 08/15/1990; $55,078; 0 mo.

Membrane Fusion and Chemotropic Approaches to Peripheral Nerve Regeneration (REU Supplement)
Hubbell, Jeffrey; Bittner, George; University of Texas at Austin, Austin, TX 78712
ECS 8915178 A003; 09/01/1989; $15,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $11,250

Development of an Advanced Neutron Stress Instrument.
Krawitz, Aaron; Berliner, Ronald; Winholtz, Robert; Popovici, Mihai; University of Missouri-Columbia, Columbia, MO 65211
ECS 9214316 A000; 09/01/1992; $285,110; 24 mo.
Jointly Funded with ACADEMIC RESEARCH FACILITIES $285,110

Development of State-of-the-Art Geo-Environmental Engineering Research Facilities
Levine, Audrey; Khera, Raj; Hsieh, Hsin-Neng; Meegoda, Namunu; Raghu, D.; The Foundation at NJIT, Newark, NJ 07102
ECS 9214571 A000; 09/01/1992; $307,131; 36 mo.
Jointly Funded with ACADEMIC RESEARCH FACILITIES $307,131

Microdynamics and Nanodynamics: Materials, Structures and Devices
MacDonald, Noel; Thomas, Robert; Cornell University - Endowed, Ithaca, NY 14853
ECS 8915277 A003; 08/15/1989; $104,200; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC and MATERIALS PROCESSING AND MANUFCT $82,100

Bulk Silicon Technologies for Microelectromechanical Systems
Najafi, Khalil; Wise, Kensall; Crary, Selden; Orr, Bradford; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 8915215 A003; 09/01/1989; $48,400; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT and MANUFACTURING MACHINES AND EQUIP $48,400

Acquisition of an Inductively Coupled Plasma-Mass Spectrometer (ICP-MS) Capable of Analyzing Solid and Liquid Samples.
Neal, Clive; Irvine, Robert; University of Notre Dame, Notre Dame, IN 46556
ECS 9214596 A000; 09/01/1992; $250,000; 14 mo.
Jointly Funded with ACADEMIC RESEARCH FACILITIES $250,000

Reconstitution of a Blood Vessel in Culture
Nerem, Robert; Alexander, R. Wayne; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 9111761 A001; 09/01/1991; $178,461; 12 mo.
Jointly Funded with BIOCHEMICAL AND BIOMASS ENG and BIOMEDICAL ENGINEERING $58,974

Renovation and Enhancement of the Microelectronics Facility
Nurmikko, Arto; Beresford, Roderic; Brown University, Providence, RI 02912
ECS 9214623 A000; 09/01/1992; $320,872; 12 mo.
Jointly Funded with ACADEMIC RESEARCH FACILITIES $320,872

Self-Assembling Microstructures with Application to Precision Resonant-Structure Micromotors
Pisano, Albert; Howe, Roger; University of California-Berkeley, Berkeley, CA 94720
ECS 8915128 A003; 09/01/1989; $86,300; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT and MANUFACTURING MACHINES AND EQUIP $36,300

Acquisition of Environmental Scanning Microscope
Ploehn, Harry; Cornwell, Leonard; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
ECS 9214314 A000; 08/15/1992; $150,007; 12 mo.
Jointly Funded with ACADEMIC RESEARCH FACILITIES $150,007

Acquisition of a High Resolution Transmission Electron Microscope
Rabenberg, Llewellyn; University of Texas at Austin, Austin, TX 78712
ECS 9214209 A000; 08/15/1992; $299,920; 12 mo.
Jointly Funded with ACADEMIC RESEARCH FACILITIES $299,920

Synthesis of Ultrafine Particles of Nanosize Reinforced Composites
Sastry, Shankar; Kelton, Kenneth; Axelbaum, Richard; Buhro, Willliam; Washington University, St. Louis, MO 63130
ECS 9119006 A001; 10/01/1991; $200,000; 12 mo.
Jointly Funded with COMBUSTION AND THERMAL PLASMAS and PARTICULATE AND MULTIPHASE PROC $30,000

Renovation of Earth and Atmospheric Sciences/Environmental Engineering Laboratories
Saunders, Fred; Kiang, Chia; Bayer, Charlene; Ray, J.; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
STI 9214457 A000; 09/15/1992; $746,861; 36 mo.

Engineering Systems Program

Power Systems

PYI: Nonlinear Control and Order Reduction
Abed, Eyad; University of Maryland-College Park, College Park, MD 20742
ECS 8657561 A006; 07/01/1987; $37,500; 0 mo.

Standing Phase Angle Reduction in Power Systems
Adibi, Mahmood; Industrial Research and Development Corporation, Bethesda, MD 20827
III 9160779 A000; 01/01/1992; $49,940; 6 mo.

Presidential Young Investigator Awards
Ahmed-Zaid, Said; Clarkson University, Potsdam, NY 13676
ECS 9058174 A002; 09/01/1990; $45,048; 12 mo.

Inclusion of Transmission Reliability Costs in Real Time Pricing Decisions
Alvarado, Fernando; DeMarco, Christopher; Ray, Dennis; University of Wisconsin-Madison, Madison, WI 53706
ECS 8907391 A002; 11/15/1989; $80,200; 12 mo.

Investigation of Computational and Analytical Aspects of Interior Point Methods in Power System State Estimation
Alvarado, Fernando; University of Wisconsin-Madison, Madison, WI 53706
ECS 9215271 A000; 09/01/1992; $66,330; 12 mo.

Engineering Research Equipment: A Power Electronics and Electric Power Quality Research Workstation
Balda, Juan C.; Simon, Ang; Olejniczak, Kraig; University of Arkansas-Main Campus, Fayetteville, AR 72701
ECS 9213022 A000; 09/15/1992; $76,185; 12 mo.

Synthesis of Robust Controllers with Structured Real Uncertain Parameters
Barmish, B. Ross; University of Wisconsin-Madison, Madison, WI 53706
ECS 9111570 A001; 09/01/1991; $88,868; 0 mo.

Theory and Applications of Parallel Sparse Vector Methods (Minority Research Initiation)
Betancourt, Ramon; San Diego State University Foundation, San Diego, CA 92182-1900
ECS 8915357 A002; 01/01/1990; $15,000; 6 mo.

On-Line Security Analysis of Power Systems
Bose, Anjan; Arizona State University, Tempe, AZ 85287
ECS 9014765 A002; 08/15/1990; $82,123; 12 mo.

A Low GPS Time Sensor for Use in Power System Control (SBIR Phase I)
Brown, Alison; NAVSYS Corporation, Colorado Springs, CO 80921
III 9160302 A000; 01/15/1992; $50,000; 6 mo.

Presidential Young Investigator Award: A Theory-Based Controlling UEP Method for Power System Transient Stability Analysis
Chiang, Hsiao-Dong; Cornell University - Endowed, Ithaca, NY 14853
ECS 8957878 A006; 08/01/1989; $37,500; 0 mo.
ECS 8957878 A007; 08/01/1989; $62,500; 12 mo.

Presidential Young Investigator Award
Cho, Bo; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
ECS 8957482 A003; 09/01/1989; $62,500; 12 mo.

Incipient Fault Detection in Rotating Machines Using a Neural Network
Chow, Mo-yuen; White, Mark; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
ECS 8922727 A004; 07/01/1990; $50,000; 12 mo.

Robust Frequency Domain Design of Flexible AC Transmission System Devices for Power System Damping Control
Chow, Joe; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
ECS 9215076 A000; 09/01/1992; $52,555; 12 mo.

Engineering Research Equipment: Equipment for the Measurement of Fast Voltage Transients
Chowdhuri, Pritindra; Tennessee Technological University, Cookeville, TN 38505
ECS 9111505 A000; 01/01/1992; $26,343; 12 mo.

Presidential Young Investigator Award
Christie, Richard D.; University of Washington, Seattle, WA 98195
ECS 9058060 A002; 09/15/1990; $62,500; 12 mo.

Electric Power Network Error Detection Using L1 Optimization
Clements, Kevin; Davis, Paul; Worcester Polytechnic Institute, Worcester, MA 01609
ECS 8814046 A003; 09/01/1988; $47,872; 0 mo.

Power System State Estimation, External Network Models and Interior Point Optimization Methods
Clements, Kevin; Davis, Paul; Worcester Polytechnic Institute, Worcester, MA 01609
ECS 9209294 A000; 09/01/1992; $84,646; 12 mo.

NSF Young Investigator
Crow, Mariesa; University of Missouri-Rolla, Rolla, MO 65401
ECS 9257208 A000; 09/01/1992; $25,000; 12 mo.

NSF Sponsored Student Travel Program
Daneshdoost, Morteza; Southern Illinois University at Carbondale, Carbondale, IL 62901
ECS 9200804 A000; 04/15/1992; $48,958; 36 mo.

Decomposition and Parallel Processing Techniques for Large-Scale Electric Power System Planning Under Uncertainty
Dantzig, George; Glynn, Peter; Stanford University, Stanford, CA 94305
ECS 8906260 A002; 03/01/1990; $49,507; 12 mo.
Jointly Funded with OPERATIONS RESEARCH $24,754

Presidential Young Investigator Award: Nonlinear Security and Control Techniques for Power Systems
DeMarco, Christopher; University of Wisconsin-Madison, Madison, WI 53706
ECS 8857019 A004; 08/01/1988; $62,500; 12 mo.

Presidential Young Investigator Award
Dobson, Ian; University of Wisconsin-Madison, Madison, WI 53706
ECS 9157192 A001; 08/01/1991; $62,500; 12 mo.

Optimum Design of Permanent Magnet Brushless DC Machines
Famouri, Parviz; West Virginia University Research Corporation, Morgantown, WV 26506
ECS 9209089 A000; 09/15/1992; $75,001; 36 mo.

Neural Network-Based Approaches to Nonlinear Short Term Load Forcasting for Electric Utilities
Fine, Terrence; Cornell University - Endowed, Ithaca, NY 14853
ECS 9017493 A001; 06/15/1991; $82,014; 12 mo.

Optional Forward Contracts: Security Applications and Theoretical Extensions
Gedra, Thomas; Oklahoma State University, Stillwater, OK 74078
ECS 9211182 A000; 09/15/1992; $91,200; 36 mo.

Application of Nonlinear Model-Based Predictive Control to Fossil Power Plants
Gibbs, Bruce; Coleman Research Corporation, Orlando, FL 32819-8343
III 9121520 A000; 09/01/1992; $249,988; 18 mo.

An Integrated Undergraduate Program on Semiconductor Devices for Power Flow Control
Gray, Jeffrey; Heydt, Gerald; Neudeck, Gerold; Ong, Chee-Mun; Purdue University Research Foundation, West Lafayette, IN 47907
EEC 9212409 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Block Travel for: 12th World Congress - International Federation of Automatic Control to be held in Sydney, Australia July 19-23, l993
Haddad, A.; Northwestern University, Evanston, IL 60208
ECS 9215458 A000; 01/15/1993; $30,000; 12 mo.
Jointly Funded with DYNAMIC SYSTEMS AND CONTROL $5,000

Applications of Walsh Transforms for Electric Power Quality Analysis
Heydt, Gerald; Purdue University Research Foundation, West Lafayette, IN 47907
ECS 9112787 A001; 08/15/1991; $62,429; 12 mo.

Short Term Economic Energy Management in a Deregulated Environment - An Engineering-Based Approach
Ilic, Marija; Tabors, Richard; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9120837 A000; 09/01/1992; $65,000; 12 mo.

REU: Synthesis, Analysis, and Design of Resonant DC/DC Converters
Kazimierczuk, Marian; Wright State University, Dayton, OH 45435
ECS 8922695 A002; 07/01/1990; $10,000; 0 mo.

On-Line Tracking of Synchronous Machine Parameters and Turns Ratio of Windings from Operating Data
Keyhani, Ali; Ohio State University Research Foundation, Columbus, OH 43210
ECS 9204567 A000; 09/01/1992; $37,265; 12 mo.

Intelligent Control Concepts for Automatic Generation Control of Electric Power Systems
King, Roger; Luck, Rogelio; Mississippi State University, Mississippi State, MS 39762
ECS 9216549 A000; 09/15/1992; $133,838; 36 mo.
Jointly Funded with SYSTEMS THEORY and DYNAMIC SYSTEMS AND CONTROL $108,838

Decision Fusion and Extrapolation for Security Supervisor Control Systems
Kwatny, Harry; Fischl, Robert; Kam, Moshe; Drexel University, Philadelphia, PA 19104
ECS 9216588 A000; 09/15/1992; $200,000; 36 mo.
Jointly Funded with SYSTEMS THEORY and DYNAMIC SYSTEMS AND CONTROL $195,000

Research and Curriculum Development for Power Plant Intelligent Distributed Control
Lee, Kwang; Edwards, Robert; Mayer, Jeffrey; Pennsylvania State Univ.-University Park, University Park, PA 16801
EEC 9212132 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

PYIA: Analysis and Prevention of Voltage Collapse of Power System
Liu, Chen-Ching; University of Washington, Seattle, WA 98195
ECS 8657671 A005; 07/01/1987; $62,500; 12 mo.

Transformer Magnetization Under the Influence of Geomagnetically Induced Currents
Liu, Yilu; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
ECS 9113014 A001; 08/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Conference: Student Travel for the 1992 PES Summer Meeting to be held in Seattle, WA on July 12-16, 1992
Liu, Chen-Ching; University of Washington, Seattle, WA 98195
ECS 9211804 A000; 05/15/1992; $14,740; 6 mo.

Coordinating Controllers for Multi-Objective Autmomatic Generation Control
Lo, Edward; EPIC Engineering Inc., Los Altos, CA 94022
III 9161208 A000; 01/15/1992; $50,000; 6 mo.

Distribution of Power Generation System Production Costs
Mazumdar, M.; University of Pittsburgh, Pittsburgh, PA 15260
ECS 9106396 A001; 08/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
ECS 9106396 A002; 08/15/1991; $79,086; 12 mo.

NSF Young Investigator
Mili, Lamine; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
ECS 9257204 A000; 09/01/1992; $25,000; 12 mo.

PYIA: An Expert System Assisted Power Flow Evaluation
Momoh, James; Howard University, Washington, DC 20059
ECS 8657559 A007; 07/01/1987; $15,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $11,250

Integrated Studies of Problems in Managing Research and Human Responses to Global Climate Change
Morgan, M. Granger; Fischhoff, Baruch; Lave, Lester; McRae, Gregory; Rubin, Edward; Carnegie-Mellon University, Pittsburgh, PA 15213
SES 9022738 A001; 04/01/1991; $175,000; 12 mo.

A High Performance Reluctance Machine and Its Optimal-Current Angle Decoupled Control
Nasar, Syed; Kentucky Research Foundation, Lexington, KY 40506
ECS 9208385 A000; 09/15/1992; $54,813; 12 mo.

Presidential Young Investigator Award: Micro-Gravity Computational Fluid Dynamics and Knowledge-Based Systems
Nassersharif, Bahram; University of Nevada-Las Vegas, Las Vegas, NV 89154
ECS 9296042 A000; 11/19/1991; $32,000; 3 mo.
ECS 9296042 A001; 11/19/1991; $62,500; 12 mo.

Supplement for Undergraduate Research Support
Ngo, Khai D.; University of Florida, Gainesville, FL 32611
ECS 8957926 A005; 08/01/1989; $5,000; 0 mo.

Supplement for Undergraduate Research Support
Ngo, Khai D.; University of Florida, Gainesville, FL 32611
ECS 8957926 A004; 08/01/1989; $62,500; 12 mo.

Multiobjective Optimum Design of Semiconductor Power Converters
Ojo, Joseph; Tennessee Technological University, Cookeville, TN 38505
ECS 9112426 A000; 08/15/1992; $60,000; 24 mo.

Block Travel Grant for the Fifth International Conference on Harmonics in Power Systems (ICHPS-V), to be held in Atlanta, GA., September 23-25, 1992
Olejniczak, Kraig; University of Arkansas-Main Campus, Fayetteville, AR 72701
ECS 9215738 A000; 08/01/1992; $8,000; 12 mo.

Integrated Framework for Power System Security Assessment Using Energy Methods
Overbye, T.; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9209570 A000; 09/15/1992; $100,000; 36 mo.

Stability of Large Scale Systems with High Order Model Reduction
Pai, M.; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9119428 A000; 09/01/1992; $60,000; 12 mo.

Identification of Static and Dynamic Distribution System Aggregate Load Using Probabilistic Neural Networks
Patton, James; University of Maine, Orono, ME 04469-0114
ECS 9210878 A000; 09/15/1992; $93,623; 36 mo.

Advancing Power System Identification Methods and Robust Control Strategies for Power System Damping
Pierre, Donald; Nehrir, M. Hashem; Smith, J.; Montana State University, Bozeman, MT 59717
ECS 9204582 A000; 09/15/1992; $52,727; 12 mo.

Decentralized Control for Structrural Uncertainties: Power Systems Applications
Sethares, William; Lasseter, Robert; Alvarado, Fernando; University of Wisconsin-Madison, Madison, WI 53706
ECS 9216520 A000; 09/15/1992; $200,000; 36 mo.
Jointly Funded with SYSTEMS THEORY and DYNAMIC SYSTEMS AND CONTROL 180,000

Security-Constrained Unit Commitment
Shaw, John; Alphatech Inc., Burlington, MA 01803-4562
III 9160169 A000; 01/15/1992; $50,000; 6 mo.

Combinatorial Optimization for Transaction Evaluation
Sheble, Gerald; Iowa State University, Ames, IA 50011
ECS 9019076 A001; 09/01/1991; $10,000; 0 mo.

Development of a Fully Constrained Dynamic Economic Dispatch Methodology for Real-Time Application
Shoults, Raymond; University of Texas at Arlington, Arlington, TX 76019
ECS 9214593 A000; 09/01/1992; $52,810; 12 mo.

Decentralized Control and Computations of Complex Systems
Siljak, Dragoslav; Santa Clara University, Santa Clara, CA 95053
ECS 9114872 A000; 08/15/1992; $49,978; 12 mo.

Developing a Realistic and Viable Methodology for Reliability Evaluation of Multi-Area Interconnected Power Systems
Singh, Chanan; Texas A&M University Research Foundation, College Station, TX 77843
ECS 9113735 A001; 08/15/1991; $101,375; 12 mo.

Image Reconstruction from Cone-Beam Projections
Smith, Bruce; Murio, Diego; University of Cincinnati-Main Campus, Cincinnati, OH 45221
ECS 9112810 A000; 08/15/1992; $143,151; 24 mo.

Effect of Global Warming Feedback on Energy Production Strategies
Sreenath, N.; Case Western Reserve University, Cleveland, OH 44106
ECS 9209746 A000; 09/15/1992; $100,000; 36 mo.

Presidential Young Investigator Award
Taylor, David; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9158037 A001; 08/01/1991; $36,809; 12 mo.
ECS 9158037 A002; 08/01/1991; $25,691; 0 mo.

Electric Power System Infrastructure
Thomas, Robert; Cornell University - Endowed, Ithaca, NY 14853
ECS 9221857 A000; 09/01/1992; $50,000; 12 mo.

Nonlinear Actuator Design Using Nonlinear System Theory
Torrey, David; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
ECS 9209123 A000; 09/15/1992; $89,983; 36 mo.

Development of a Comprehensive Robust Control Theory and Design Methodology for Power Conversion Systems
Tymerski, Richard; Portland State University, Portland, OR 97207
ECS 9212199 A000; 09/15/1992; $90,000; 36 mo.

Block Travel Grant for the Seventh National Power Systems Conference (NPSC) to be held in Calcutta, India, December 19-22, l992
Venkata, Subrahman; University of Washington, Seattle, WA 98195
ECS 9217863 A000; 10/01/1992; $20,000; 12 mo.

A Novel Approach to Robust Control Design and Analysis for Power Systems
Vittal, Vijay; Khammash, Mustafa; Iowa State University, Ames, IA 50011
ECS 9213699 A000; 09/01/1992; $66,554; 12 mo.

High Voltage Conduction and Breakdown Phenomena in Dielectrics
Zahn, Markus; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 8913605 A004; 12/15/1989; $76,000; 12 mo.

Systems Theory

PYI: Adaptive Control Theory and Applications
Annaswamy, Anuradha; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9296070 A000; 12/18/1991; $10,800; 14 mo.
ECS 9296070 A001; 12/18/1991; $62,500; 12 mo.

ROW: Robust Adaptive Control
Annaswamy, Anuradha; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9296073 A001; 12/18/1991; $27,770; 12 mo.

Intelligent Feedback Systems
Athans, Michael; Tsitsiklis, John; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9216531 A000; 09/15/1992; $200,000; 36 mo.
Jointly Funded with DYNAMIC SYSTEMS AND CONTROL $100,000

Synthesis of Robust Controllers with Structured Real Uncertain Parameters
Barmish, B.Ross; University of Wisconsin-Madison, Madison, WI 53706
ECS 9111570 A001; 09/01/1991; $88,868; 0 mo.
Jointly Funded with POWER SYSTEMS $71,940

Synthesis of Robust Controllers Under Perturbations of Mixed Type
Bhattacharyya, S.; Texas A&M University Research Foundation, College Station, TX 77843
ECS 9106312 A000; 12/15/1991; $60,000; 12 mo.

International Workshop on Robust Control, April 12-17, 1992 Ascona, Switzerland
Bhattacharyya, S.; Keel, Leehyun; Texas A&M University Research Foundation, College Station, TX 77843
ECS 9209486 A000; 03/15/1992; $8,000; 6 mo.

Synthesis of Robust Controllers Under Perturbations of Mixed Type
Dahleh, Mohammed; University of California-Santa Barbara, Santa Barbara, CA 93106
ECS 9111058 A001; 09/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

PYI: Research in System Identification and Robust Control
Dahleh, Munther; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9157306 A001; 08/15/1991; $62,300; 12 mo.

Robust Design Issues in Communications, Signal Processing and Control
Dasgupta, Soura; University of Iowa, Iowa City, IA 52242
ECS 9211593 A000; 09/15/1992; $61,800; 12 mo.

Robustness Quantification and Performance Improvement in Adaptive Control Systems
Datta, Aniruddha; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
ECS 9210726 A000; 09/01/1992; $89,999; 36 mo.

Design and Control of a Walking Robot
Dayawansa, Wijesuriya; Tits, Andre; Azarm, Shapour; Farvardin, Nariman; Tsai, Lung-Wen; University of Maryland-College Park, College Park, MD 20742
EEC 9212126 A000; 09/15/1992; $365,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

PYIA: Synthesis of Robust Control System
Doyle, John; California Institute of Technology, Pasadena, CA 91125
ECS 8657814 A004; 08/15/1987; $62,500; 12 mo.

Workshop in Nonlinear Control Theory, May 27-31, 1992, Washington University, St. Louis, MO
Elliott, David; Byrnes, Christopher; Washington University, St. Louis, MO 63130
ECS 9204612 A000; 04/01/1992; $20,000; 12 mo.

Neural Network Fuzzy Adaptive Control
Esogbue, Augustine; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9216004 A000; 09/15/1992; $133,838; 36 mo.
Jointly Funded with DYNAMIC SYSTEMS AND CONTROL $33,838

Mathematical Sciences: Research on Optimal Stochastic Control and Nonlinear Estimation
Fleming, Wendell; Brown University, Providence, RI 02912
DMS 9000038 A002; 07/01/1990; $63,500; 12 mo.

Presidential Young Investigator Award: Robust Design of Multivariable Feedback Systems
Freudenberg, James; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 8857510 A005; 09/01/1988; $25,000; 12 mo.

New Methods in Modeling and Control of Dynamical Systems
Georgiou, Tryphon; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 9016050 A001; 07/15/1991; $51,467; 12 mo.

New Methods in Modeling and Control of Dynamical Systems
Georgiou, Tryphon; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 9016050 A002; 07/15/1991; $10,000; 0 mo.

Presidential Young Investigator Award: Nonlinear Control Systems
Grizzle, Jessy; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 8896136 A005; 09/01/1987; $30,000; 0 mo.

NSF Young Investigator
Gundes, A. Nazli; University of California-Davis, Davis, CA 95616-8671
ECS 9257932 A000; 09/01/1992; $25,000; 12 mo.

Block Travel for: 12th World Congress - International Federation of Automatic Control to be held in Sydney, Australia July 19-23, l993.
Haddad, A.; Northwestern University, Evanston, IL 60208
ECS 9215458 A000; 01/15/1993; $30,000; 12 mo.
Jointly Funded with POWER SYSTEMS and DYNAMIC SYSTEMS AND CONTROL $10,000

Nonlinear Feedback-Control Systems
Hammer, Jacob; University of Florida, Gainesville, FL 32611
ECS 8913424 A002; 04/01/1990; $8,950; 0 mo.

PYI: Analysis and Design of Nonlinear Control Systems
Hauser, John; University of Southern California, Los Angeles, CA 90089
ECS 9157835 A001; 08/01/1991; $62,500; 12 mo.

PYIA: Robust Controller Design for Systems with Nonsmooth Nonlinearities
Heck, Bonnie S.; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9058140 A002; 08/15/1990; $62,500; 12 mo.

DEDS: A New Paradigm for Performance Analysis, Computation and Optimization
Ho, Yu-Chi; Harvard University, Cambridge, MA 02138
EEC 9212122 A000; 09/15/1992; $365,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION $290,000

Presidential Young Investigator Award: Compliant and Dual Arm Control
Hollot, Christopher; University of Massachusetts-Amherst, Amherst, MA 01003
ECS 8858366 A003; 12/01/1988; $25,000; 12 mo.

Adaptive Control: Design Trade-Offs, Robustness, Performance
Ioannou, Petros; University of Southern California, Los Angeles, CA 90089
ECS 9119722 A000; 09/15/1992; $100,000; 24 mo.

Disturbance Attenuation in Nonlinear Control Systems
Isidori, Alberto; Washington University, St. Louis, MO 63130
ECS 9208306 A000; 09/01/1992; $112,552; 24 mo.

Asymptotically Stable Multiple Input-Multiple Output Direct Model Reference Adaptive Controllers for Processes Not Necessarily Satisfying a Positive Real Constraint
Kaufman, Howard; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
ECS 9111565 A001; 09/01/1991; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

Nonlinear Output Feedback Control
Khalil, Hassan; Michigan State University, East Lansing, MI 48824
ECS 9121501 A000; 09/01/1992; $120,000; 24 mo.

Intelligent Control Concepts for Automatic Generation Control of Electric Power Systems
King, Roger; Luck, Rogelio; Mississippi State University, Mississippi State, MS 39762
ECS 9216549 A000; 09/15/1992; $133,838; 36 mo.
Jointly Funded with DYNAMIC SYSTEMS AND CONTROL $33,838

Adaptive and Robust Nonlinear Control
Kokotovic, Petar; University of California-Santa Barbara, Santa Barbara, CA 93106
ECS 9203491 A000; 09/01/1992; $287,508; 36 mo.

System Identification for Robust Control Design
Kosut, Robert; Integrated Systems Inc., Santa Clara, CA 95054-1215
III 9161408 A000; 01/01/1992; $49,994; 6 mo.

Intelligent Control of Cutting Force in Three-Dimensional End Milling Operations Using Neural Networks
Krishnamurthy, K; Lu, Wen; McMillin, Bruce; University of Missouri-Rolla, Rolla, MO 65401
MSS 9216479 A000; 09/01/1992; $200,000; 36 mo.

Modeling, Design, and Analysis of Control Algorithms for Scheduling Manufacturing Systems
Kumar, P.; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9025007 A001; 09/01/1991; $60,000; 12 mo.
Jointly Funded with PRODUCTION SYSTEMS $20,000

Research on Stochastic Systems and Filtering Theory and Applications
Kushner, Harold; Brown University, Providence, RI 02912
ECS 8913351 A002; 02/15/1990; $60,397; 12 mo.
Jointly Funded with APPLIED MATHEMATICS $25,000
ECS 8913351 A003; 02/15/1990; $16,197; 0 mo.

Decision Fusion and Extrapolation for Security Supervisor Control Systems
Kwatny, Harry; Fischl, Robert; Kam, Moshe; Drexel University, Philadelphia, PA 19104
ECS 9216588 A000; 09/15/1992; $200,000; 36 mo.
Jointly Funded with DYNAMIC SYSTEMS AND CONTROL $100,000

Presidential Young Investigator Award: Modeling, Analysis and Control of Discrete Event Systems
Lafortune, Stephane; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 9057967 A002; 07/01/1990; $62,500; 12 mo.

Large-Scale Computing in Control
Laub, Alan; University of California-Santa Barbara, Santa Barbara, CA 93106
ECS 9120643 A000; 08/01/1992; $70,000; 12 mo.
Jointly Funded with COMPUTATIONAL ENGINEERING and COMPUTATIONAL MATHEMATICS $35,000

Intelligent Control of Systems with Set-Partitioned Dynamics
Laub, Alan; Seborg, Dale; Kokotovic, Petar; Paden, Brad; Dahleh, Mohammed; University of California-Santa Barbara, Santa Barbara, CA 93106
MSS 9216690 A000; 09/15/1992; $200,000; 36 mo.

System Identification Methods for Optical Sensing of Wind Profiles
Leland, Robert; The University of Alabama, Tuscaloosa, AL 35487-2856
ECS 9211596 A000; 09/15/1992; $89,085; 36 mo.

Frequency Domain Control Design for Flexible Systems
Lenz, Kathryn; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 9116214 A000; 08/15/1992; $80,000; 24 mo.

Development of Diagnostic Testing Strategies
Lin, Feng; Wayne State University, Detroit, MI 48202
ECS 9213922 A000; 09/01/1992; $15,000; 12 mo.

Workshop on Fuzzy-Neuro Systems
Malkani, Mohan; Tennessee State University, Nashville, TN 37203
ECS 9221943 A000; 08/01/1992; $20,000; 6 mo.
Jointly Funded with KNOWLEDGE MODELS AND COGNIT SYST $5,000

Computer-Aided Design of and Robust Theory for Multi-Rate Sampled-Data Control Systems
Meyer, David; University of Virginia-Main Campus, Charlottesville, VA 22901
ECS 9100900 A000; 01/01/1991; $0; 13 mo.

Computer-Aided Design of and Robust Theory for Multi-Rate Sampled-Data Control Systems
Meyer, David; University of Colorado at Boulder, Boulder, CO 80309
ECS 9296128 A000; 02/01/1992; $20,590; 10 mo.

Qualitative Analysis of Complex Dynamical Systems
Michel, Anthony; University of Notre Dame, Notre Dame, IN 46556
ECS 9107728 A001; 08/15/1991; $37,200; 12 mo.

Presidential Young Investigator Award: Computational Geometry/Optimization
Mitchell, Joseph; Research Foundation of State of New York (SUNY), Albany, NY 12201
ECS 9296056 A000; 11/01/1991; $35,400; 1 mo.
ECS 9296056 A001; 11/01/1991; $56,224; 12 mo.

Design of a Nonlinear Class of Adaptive Stabilizing Controllers
Mohler, Ronald; Chen, Larry; Oregon State University, Corvallis, OR 97331-5503
ECS 8913773 A004; 03/01/1990; $12,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $9,375
ECS 8913773 A005; 03/01/1990; $29,447; 12 mo.

Presidential Young Investigator Award: Complexity Uncertainty, Information, and Organization in Control System Design for Modern Engineering Systems
Nett, Carl; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9058397 A004; 09/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
ECS 9058397 A005; 09/01/1990; $62,500; 12 mo.

Workshop on Variable Structure Control and Sliding Mode held in Cleveland, Ohio, October, l992.
Ozguner, Umit; Ohio Aerospace Institute, Cleveland, OH 44142
ECS 9221944 A000; 09/01/1992; $10,000; 6 mo.

Stochastic Adaptive Control of Distributed Parameter Systems with Boundary Control
Pasik-Duncan, Bozenna; University of Kansas Center for Research Inc., Lawrence, KS 66044
ECS 9113029 A001; 08/01/1991; $5,249; 0 mo.

Intelligent Control of Dynamic Systems
Perkins, William; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9216487 A000; 09/15/1992; $200,000; 36 mo.

Continuation of Research on an Optimization-Based Methodology for Computer-Aided Design
Polak, Elijah; University of California-Berkeley, Berkeley, CA 94720
ECS 8916168 A002; 06/01/1990; $55,000; 12 mo.
Jointly Funded with COMPUTATIONAL ENGINEERING and COMPUTATIONAL MATHEMATICS $35,000

Presidential Young Investigator Award: Robustness and Feedback Systems
Poolla, Kameshwar; University of California-Berkeley, Berkeley, CA 94720
ECS 9296058 A001; 08/04/1991; $42,000; 12 mo.

RUI: The Partition of Unstable Polytopes of Polynomials and Its Applications
Pujara, L.; Wright State University, Dayton, OH 45435
ECS 9112039 A001; 09/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Analysis and Control of Discrete Event Systems
Ramadge, Peter; Princeton University, Princeton, NJ 08544
ECS 9022634 A001; 07/15/1991; $54,998; 12 mo.

Intelligent Control of Mechanical Structures for Damage Mitigation and Failure Prognosis
Ray, Asok; Koss, Donald; Carpino, Marc; Pennsylvania State Univ.-University Park, University Park, PA 16801
ECS 9216386 A000; 09/15/1992; $200,000; 36 mo.

Adaptive Systems for Identification, Signal Processing and Control: Solvability, Performance, Robustness and Applications
Ren, Wei; University of California-Berkeley, Berkeley, CA 94720
ECS 9211025 A000; 09/01/1992; $100,000; 36 mo.

Group Travel Grant to 1992 IEEE International Conference on Robotics and Automation; to be held May 11-15, in Nice, France
Sanderson, Arthur; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
MSS 9203431 A000; 03/15/1992; $31,490; 12 mo.
Jointly Funded with PRODUCTION SYSTEMS $8,000

Feedback Control of the Nuclear Magnetization State (SGER Award)
Schiano, Jeffrey; Magin, Richard; University of Illinois Agricultural Experiment Station, Champaign, IL 61820
ECS 9121187 A001; 09/01/1991; $7,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,250

Decentralized Control for Structrural Uncertainties: Power Systems Applications
Sethares, William; Lasseter, Robert; Alvarado, Fernando; University of Wisconsin-Madison, Madison, WI 53706
ECS 9216520 A000; 09/15/1992; $200,000; 36 mo.
Jointly Funded with DYNAMIC SYSTEMS AND CONTROL $100,000

NSF Young Investigator
Shamma, Jeff; University of Texas at Austin, Austin, TX 78712
ECS 9258005 A000; 09/15/1992; $25,000; 12 mo.

Research Initiation Award: Robust Control for Nonlinear Systems
Shamma, Jeff; University of Texas at Austin, Austin, TX 78712
ECS 9296074 A000; 01/01/1992; $59,900; 25 mo.

Constrained H-Infinity Optimiztion: An Approach for the Robust Control of Systems with Time-Domain Constraints
Sideris, Athanasios; University of California-Irvine, Irvine, CA 92717
ECS 9214993 A000; 09/15/1992; $50,000; 12 mo.

Workshop on the Modeling of Uncertainty in Control Systems, April/May 1992, University of California, Santa Barbara
Smith, Roy; Dahleh, Mohammed; University of California-Santa Barbara, Santa Barbara, CA 93106
ECS 9203908 A000; 04/15/1992; $34,000; 6 mo.
Jointly Funded with AIR FORCE $17,000

RIA: Alternate Representations of Stochastic Processes and Perturbation Analysis of Discrete-Event Dynamic Systems
Strickland, Stephen; University of Virginia-Main Campus, Charlottesville, VA 22901
ECS 9209902 A000; 09/01/1992; $89,984; 36 mo.

Research Initiation Award: Adaptive Control System Redesign for Improving Transient Performance
Sun, Jing; Wayne State University, Detroit, MI 48202
ECS 9110984 A001; 08/15/1991; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

Mathematical Sciences: Differential Geometric and Real Analytic Methods in Nonlinear Control Theory
Sussmann, Hector; Rutgers University-New Brunswick, New Brunswick, NJ 08903
DMS 9202554 A000; 07/01/1992; $50,003; 12 mo.

Robust Control of Systems Under Mixed Time/Frequency-Domain Performance Specifications and Applications
Sznaier, Mario; University of Central Florida, Orlando, FL 32816
ECS 9211169 A000; 08/15/1992; $98,716; 36 mo.

Mathematical Sciences: Structured and Nonlinear Interpolation Methods for Robust System Synthesis
Tannenbaum, Allen; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 9122106 A000; 09/01/1992; $46,000; 24 mo.

Sensor-Based Control of Semiconductor Manufacturing Equipment
Terry, Fred; Elta, Michael; Khargonekar, Pramod; Grizzle, Jessy; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
EEC 9212316 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Workshop: Hierarchical Control for Real Time Control and Scheduling of Manufacturing Systems to be held in Meredith, New Hamphire, October 16-18, 1992
Vakili, Pirooz; Boston University, Boston, MA 02215
ECS 9221942 A000; 09/15/1992; $15,000; 12 mo.

Discrete Event Systems: Application, Experiment and Theory
Varaiya, Pravin; University of California-Berkeley, Berkeley, CA 94720
ECS 9111907 A001; 09/01/1991; $60,000; 12 mo.

H-Infinity Design in Interconnected and Slowly Time-Varying Systems
Wang, Le Yi; Wayne State University, Detroit, MI 48202
ECS 9209001 A000; 09/01/1992; $90,000; 36 mo.

Control of Nonlinear Distributed Systems with Free Bounaries
Wang, Paul; University of California-Los Angeles, Los Angeles, CA 90024
ECS 9213301 A000; 09/15/1992; $99,972; 24 mo.

Statistical Signal Processing and Estimation for Spatial and Multidimensional Data: Multiresolution Methods, Efficient Algorithms and Geometric Reconstruction
Willsky, Alan; Massachusetts Institute of Technology, Cambridge, MA 02139
MIP 9015281 A001; 03/15/1991; $65,000; 12 mo.

Monotone Control of Discrete-Event Systems
Yao, David; Glasserman, Paul; Columbia University, New York, NY 10027
MSS 9216490 A000; 09/01/1992; $200,000; 36 mo.

Robust Stability and Stabilization of Systems with Real Parameter Uncertainty
Zhou, Kemin; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
ECS 9210388 A000; 09/01/1992; $90,000; 36 mo.

Quantum Electronics, Waves, and Beams Program

Lightwave Technology

INGAAS/GAAS Pseudomorphic Hemts for High Speed Circuit Applications
Allstot, David; Arthur, John; Goodnick, Stephen; Oregon State University, Corvallis, OR 97331-5503
ECS 8821639 A002; 06/01/1989; $118,179; 12 mo.

A Study of Rare-Earth Doped Semiconductors and Novel Laser Structures
Bhattacharya, Pallab; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 9014069 A001; 04/01/1991; $95,000; 12 mo.

Presidential Young Investigator Award: A New Partial Integration Method for Analysis of Mode Locked Semi-Conductor Lasers
Bowers, John; University of California-Santa Barbara, Santa Barbara, CA 93106
ECS 8857742 A003; 09/01/1988; $62,500; 12 mo.

Quantum Wire Nanostructures in Multiple Quantum Well Optical Waveguides: Enhanced Nonlinear Optical Interactions
Boyd, Joseph; Jackson, Howard; University of Cincinnati-Main Campus, Cincinnati, OH 45221
ECS 9113244 A001; 08/15/1991; $130,000; 12 mo.
Jointly Funded with AIR FORCE-III-V SEMICONDUCTOR $65,000

SGER: High Space-Time Bandwidth Volume Holographic Systems
Brady, David Jones; Papen, George C.; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9216273 A000; 10/01/1992; $50,000; 12 mo.
Jointly Funded with AIR FORCE $25,000

Ge(x)Si(1-x)/Si Opoelectronic Devices and Integrated Circuits
Campbell, Joe; Kwong, Dim-Lee; University of Texas at Austin, Austin, TX 78712
ECS 9101187 A000; 01/15/1992; $92,167; 12 mo.

Materials Synthesis and Processing: Computer Aided Microelectronics Manufacturing Technology for Excimer Laser Based Lithography
Cavallaro, Joseph; Tittel, Frank; Wilson, William; William Marsh Rice University, Houston, TX 77252
DDM 9202639 A000; 10/01/1992; $107,472; 12 mo.

NSF Young Investigator: Two-Dimensional Vertical Cavity Laser Arrays and Aluminum-Free Lasers
Chang-Hasnain, Constance; Stanford University, Stanford, CA 94305
ECS 9257209 A000; 09/01/1992; $25,000; 12 mo.

Plasma Immersion Ion Implantation for Surface Material Synthesis
Cheung, Nathan; Gustafson, Ture; Lieberman, Michael; Birdsall, Charles; University of California-Berkeley, Berkeley, CA 94720
ECS 9202993 A000; 08/15/1992; $167,000; 12 mo.
Jointly Funded with SOLID-STATE AND MICROSTRUCTURE RES and ELECTRONIC MATERIALS $117,000

Infrared Optical Engineering Research Equipment
Chin, K. Ken; Hensel, J.; The Foundation at NJIT, Newark, NJ 07102
ECS 9213108 A000; 10/15/1992; $50,000; 12 mo.

Presidential Young Investigator Award: Photo Refractive Non-Linear Optics
Cronin-Golomb, Mark; Tufts University, Medford, MA 02155
ECS 8658025 A006; 07/01/1987; $62,500; 12 mo.

Fabrication and Properties of Gallium Arsenide (Group IV) Alloy Semiconductors
Crook, Gentry; Matyi, Richard; University of Wisconsin-Madison, Madison, WI 53706
DMR 9202641 A000; 09/15/1992; $240,000; 12 mo.

Materials Development and Processing for Fabrication of a Microdynamical Optical Switch
Denton, Denice; McCaughan, Leon; University of Wisconsin-Madison, Madison, WI 53706
ECS 9215070 A000; 08/01/1992; $295,610; 36 mo.
Jointly Funded with SOLID-STATE AND MICROSTRUCTURE RES $147,805

PYI: Electrodynamics in Optical Semiconductor Microcavities
Deppe, Dennis; University of Texas at Austin, Austin, TX 78712
ECS 9157190 A001; 08/01/1991; $62,500; 12 mo.

Experimental Studies of Photorefractive Polymers
Ducharme, Stephen; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
ECS 9209941 A000; 10/01/1992; $11,450; 36 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $10,000

Catadioptric Lens for Excimer Laser Lithography
Elliot, David; Excimer Laser Systems Inc., West Newton, MA 02165
III 9161062 A000; 01/15/1992; $48,255; 6 mo.

Intrinsically Absorbing Polymers for Anti-Reflective Coating Applications
Flaim, Tony; Brewer Science Incorporated, Rolla, MO 65401
III 9204220 A000; 08/15/1992; $249,345; 24 mo.

Quantum Tunnel Optical Detectors, Modulators, and Sources New Devices for Ultra-High Speed OEIC's
Fonstad, Clifton; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9008485 A002; 09/01/1990; $100,000; 12 mo.

Nonlinear Optics Involving Carrier Transport in Semiconductors
Garmire, Elsa; University of Southern California, Los Angeles, CA 90089
ECS 9006551 A002; 09/01/1990; $100,000; 12 mo.

Semiconductor Physics and Photonics
Gibbs, Hyatt; Koch, Stephan; Khitrova, Galina; University of Arizona, Tucson, AZ 85721
ECS 9113219 A000; 02/15/1992; $100,000; 12 mo.

Presidential Faculty Fellow
Guido, Louis; Yale University, New Haven, CT 06520
ECS 9253760 A000; 08/15/1992; $100,000; 12 mo.

Nonlinear Photonic Microstructures
Gustafson, Ture; University of California-Berkeley, Berkeley, CA 94720
ECS 8903591 A002; 08/15/1989; $42,000; 12 mo.

Issues in the Utilization of Optics for Computation
Gustafson, Ture; University of California-Berkeley, Berkeley, CA 94720
ECS 8904191 A002; 08/15/1989; $80,793; 12 mo.

Waveguide-Mode-Enhanced Molecular Fluorescence and Other Aspects of the Dipole-Surface Problem
Hall, Dennis; University of Rochester, Rochester, NY 14627
ECS 9107850 A000; 03/15/1992; $44,998; 12 mo.

Circularly-Symmetric Grating, Surface-Emitting Semiconductor Laser
Hall, Dennis; Wicks, Gary; University of Rochester, Rochester, NY 14627
ECS 9112973 A001; 09/15/1991; $99,913; 12 mo.

Polarization Aberrations in Imaging Systems
Hansen, Eric; Dartmouth College, Hanover, NH 03755
ECS 8918141 A001; 01/01/1991; $69,414; 12 mo.

Optical Microstructures and Their Application to Spontaneous Emission Inhibition and Semiconductor Micro-Lasers (Research Initiation Award)
Ho, Seng; Northwestern University, Evanston, IL 60208
ECS 9210434 A000; 10/01/1992; $55,332; 36 mo.
Jointly Funded with OPTICAL COMMUNICATIONS INITIAT $55,332

Engineering Research Equipment: Equipment Dedicated to Research in the Engineering of Hybrid Optoelectronic Devices and Components
Johnson, Kristina; University of Colorado at Boulder, Boulder, CO 80309
ECS 9213038 A000; 09/15/1992; $56,000; 24 mo.

Presidential Young Investigator Awards: Carrier Transport Optical Nonlinearities and Integrated Optoelectronics
Jokerst, Nan; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9058144 A002; 08/01/1990; $62,500; 12 mo.

Electric Field Response of Polymer-Dispersed Liquid Crystals
Kelly, Jack; Kent State University Foundation, Kent, OH 44242
ECS 9020420 A000; 02/15/1992; $107,825; 12 mo.

Femtosecond Pulse Studies on Poled Nonlinear Polymeric Films
Knoesen, Andre; Dienes, Andrew; University of California-Davis, Davis, CA 95616-8671
ECS 9122168 A000; 09/15/1992; $102,121; 12 mo.

Novel Quantum Dot/Host Materials for Photonic and Optoelectronic Devices
Kolenbrander, Kirk; Jensen, Klavs; Kimerling, Lionel; Massachusetts Institute of Technology, Cambridge, MA 02139
DMR 9202672 A000; 08/15/1992; $180,000; 12 mo.

Polymeric Ultrathin Film Multilayered Modulators
Kowel, Stephen; University of Alabama in Huntsville, Huntsville, AL 35899
ECS 9196012 A002; 09/15/1990; $100,000; 12 mo.
Jointly Funded with DARPA $50,000

Workshop: Progress in Nonlinear-Optics: Organic and Polymeric Materials to be held on July 16-17, 1992 in San Diego
Kuzyk, Mark; Washington State University, Pullman, WA 99164-3140
ECS 9204031 A000; 04/15/1992; $2,975; 8 mo.

Nonlinear-Optical Studies of Fractal Metal Clusters
Kuzyk, Mark; Washington State University, Pullman, WA 99164-3140
ECS 9207227 A000; 09/01/1992; $61,785; 12 mo.
Jointly Funded with POLYMERS $25,000

Technology and Curriculum Development for Packaging Optoelectronic Parallel Computing Systems Based on Free-Space Optical Interconnects
Lee, Sing; Ozguz, V.; University of California-San Diego, San Diego, CA 92093
EEC 9212156 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Novel External Laser Cavities for Diode Laser Arrays
Leger, James; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 9109029 A000; 02/01/1992; $98,979; 12 mo.

Multiplexed Holographic Fabry-Perot Resonators for Optical Communications and Processing Applications
Lin, Freddie; Physical Optics Corporation, Torrance, CA 90501
III 9100147 A001; 08/01/1991; $4,472; 0 mo.

Characteristics of Optical Guided-Mode Resonance Filters
Magnusson, Robert; University of Texas at Arlington, Arlington, TX 76019
ECS 9120856 A000; 09/01/1992; $90,000; 12 mo.

Presidential Young Investigator Award: Electro-Optic Anisotropic Waveguides with Optical Nonlinearities
Maldonado, Theresa; University of Texas at Arlington, Arlington, TX 76019
ECS 9158022 A001; 08/15/1991; $62,495; 12 mo.

Novel Techniques for Polishing Diamond Films
Malshe, Ajay; Materials Modification Inc., Fairfax, VA 22031
III 9160777 A000; 01/15/1992; $49,786; 6 mo.

Linear and Nonlinear Guided Wave Optical Devices Based on a Rigorous Theory for Intersecting Waveguides
McCaughan, Leon; University of Wisconsin-Madison, Madison, WI 53706
ECS 8802714 A003; 09/15/1988; $4,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,000

New Materials for Optical Wave Guides
Meador, Jim; Brewer Science Incorporated, Rolla, MO 65401
III 9160537 A000; 01/15/1992; $50,000; 6 mo.

Proposal for a Symposium on Optoelectronic Packaging Science (August 19-21, 1992)
Mickelson, Alan; Lee, Yung-Cheng; University of Colorado at Boulder, Boulder, CO 80309
ECS 9218758 A000; 08/15/1992; $3,000; 12 mo.

High Speed Heterostructure Devices Based on InP Substrates for Optoelectronic Receiver Applications
Miller, David; Das, Mukunda; Pennsylvania State Univ.-University Park, University Park, PA 16801
ECS 9202642 A000; 08/15/1992; $167,928; 12 mo.
Jointly Funded with SOLID-STATE AND MICROSTRUCTURE RES and ELECTRONIC MATERIALS $88,797

Presidential Young Investigator Award: Signal Processing Using Integrated Optics
Molter, Lynne; Swarthmore College, Swarthmore, PA 19081
ECS 8958667 A004; 08/15/1989; $62,500; 12 mo.

Noilica Based Optical Fibers
Morse, Theodore; Brown University, Providence, RI 02912
ECS 8916997 A003; 05/01/1990; $8,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,000
ECS 8916997 A004; 05/01/1990; $98,000; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $49,000

MS&P: Optical Fiber Sensors for In-Situ Temperature and Strain Measurements in Composite
Morse, Theodore; Kim, Kyung-Suk; Sheldon, B.; Brown University, Providence, RI 02912
ECS 9202961 A000; 09/15/1992; $153,100; 12 mo.
Jointly Funded with CERAMICS $59,000

All-Optic Bimodal Fiber-Optic Logic Gates for Optical Computing Applications
Moslehi, Behzad; Optivision Inc., Palo Alto, CA 94303
III 9160947 A000; 01/01/1992; $50,000; 6 mo.

The Centrifugal Synthesis and Processing of Functionally Gradient Materials
Munir, Zuhair; McCoy, Benjamin; Risbud, Subhash; Holt, J. Birch; University of California-Davis, Davis, CA 95616-8671
DMR 9201685 A000; 09/01/1992; $230,000; 14 mo.
Jointly Funded with COMBUSTION AND THERMAL PLASMAS $90,000

Two-Dimensional Guided Wave Spatial Light Controller Based on SIMOX Processing and Germanium-Silicon Alloys
Namavar, Fereydoon; Spire Corporation, Bedford, MA 01730
III 9200540 A000; 10/15/1992; $105,934; 24 mo.

Workshop on Reconfigurable Free-Space Optical Interconnects; Boulder, Colorado
Neff, John; Stirk, Charles; University of Colorado at Boulder, Boulder, CO 80309
ECS 9206788 A000; 04/15/1992; $11,500; 7 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS and AIR FORCE - FREE SPACE OPTICAL $9,000

Conference: Travel Support for New MRS Symposium on Photo-Induced Space-Charge Effects in Semiconductors to be held in San Francisco, CA, April 27 - May 1, 1992
Nolte, David; Purdue University, West Lafayette, IN 47907
ECS 9200143 A000; 05/15/1992; $3,612; 12 mo.

Surface-Emitting Laser Arrays for High-Speed Optical Addressing
Olbright, Greg; Photonics Research Inc., Boulder, CO 80301-2454
III 9160548 A000; 01/15/1992; $49,994; 6 mo.

Presidential Young Investigator Awards: Nonlinear Effects in Optical Glass Fibers
Osterberg, Ulf; Dartmouth College, Hanover, NH 03755
ECS 9058527 A002; 08/01/1990; $62,500; 12 mo.

Interface Engineering by Molecular Beam Epitaxy and Chemical Beam Epitaxy
Otsuka, Nobuo; Gunshor, Robert; Purdue University Research Foundation, West Lafayette, IN 47907
DMR 9202957 A000; 08/15/1992; $210,000; 12 mo.

Femtosecond Optics of Quantum Confined Materials and Devices
Peyghambarian, Nasser; Koch, Stephan; University of Arizona, Tucson, AZ 85721
ECS 8909913 A002; 06/01/1989; $98,000; 12 mo.

Conference: Organization of the 1992 Integrated Photonics Research Topical Meeting held in New Orleans, Louisiana on April 13-15, 1992.
Quinn, Jarus; Optical Society of America, Washington, DC 20036
ECS 9206896 A000; 06/15/1992; $5,000; 12 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $2,500

Organization of 1992 Nonlinear Optics: Materials, Fundamental, and Applications Topical Meeting (Maui, Hawaii August 17-21, 1992)
Quinn, Jarus; Optical Society of America, Washington, DC 20036
ECS 9218185 A000; 07/15/1992; $5,000; 12 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $2,500

Investigation of Liquid Crystal Polarization Controller for Coherent Fiber-Optic Communication Systems
Rumbaugh, Scott; Apeldyn Corporation, Portland, OR 97204
III 9208665 A000; 08/15/1992; $249,960; 24 mo.

III-V Heterostructures on Silicon Substrates Prepared by OMCVD for Electronic and Photonic Applications
Salerno, Jack; Kopin Corporation, Taunton, MA 02780
III 9110426 A000; 08/01/1992; $249,730; 24 mo.

Novel Optically Nonlinear and Luminescent Conjugated Polymers
Shinar, Joseph; Barton, Thomas; Iowa State University, Ames, IA 50011
DMR 9202981 A000; 09/01/1992; $104,700; 12 mo.

II-VI Compound Semiconductor-Based Visible Light Devices
Skromme, Brian; Smith, David; Arizona State University, Tempe, AZ 85287
ECS 9202664 A000; 09/15/1992; $190,091; 12 mo.

Presidential Young Investigator Award-1987: Advanced Molecular Beam Epitaxy Techniques
Smith, John; University of California-Berkeley, Berkeley, CA 94720
ECS 8657678 A003; 08/01/1987; $44,445; 12 mo.

Organic Thin Films for High Speed Waveguides and Etalons
Stegeman, George; University of Arizona, Tucson, AZ 85721
ECS 8911960 A002; 05/01/1990; $150,000; 12 mo.

Waveguide Grating Structures in Silicon for High Speed Optical Modulators at Wavelength 1.3m
Strzelecki, Eva; Physical Optics Corporation, Torrance, CA 90501
III 9161430 A000; 01/15/1992; $49,987; 6 mo.

Photonic Integrated Circuits and Devices
Tang, C.; Cornell University - Endowed, Ithaca, NY 14853
ECS 9016617 A001; 04/01/1991; $100,000; 12 mo.

(A1,Ga)Sb Alloys and GaSb/A1Sb Multiple Quantum Wells for Infrared Optoelectronic Device Applications
Teich, Malvin; Wang, Wen; Columbia University, New York, NY 10027
ECS 9113563 A001; 08/15/1991; $85,000; 12 mo.

Nonlinear Optics in Single Crystal Waveguides of Organic Second and Third Order Optical Materials
Thakur, Mrinal; Auburn University, Auburn, AL 36849
ECS 9217630 A000; 09/15/1992; $58,467; 12 mo.

NSF Young Investigator: Novel Optoelectronic Devices Based on III-IV Semiconductor Heterostructures
Towe, Elias; University of Virginia-Main Campus, Charlottesville, VA 22901
ECS 9257641 A000; 08/15/1992; $25,000; 12 mo.

Emerging Optoelectronic Technologies, Indo-U.S. Conference, December 1991, Bangalore, India
Tripathi, Vijai; Oregon State University, Corvallis, OR 97331-5503
INT 9020210 A000; 12/15/1991; $10,000; 12 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $2,500

Novel Optically Nonlinear and Luminescent Conjugated Polymers
Vardeny, Zeev Valy; University of Utah, Salt Lake City, UT 84112
DMR 9222047 A000; 09/01/1992; $45,300; 12 mo.

Thin Flim Squids of High TC Materials
Vittoria, Carmine; Northeastern University, Boston, MA 02115
ECS 9011618 A001; 03/01/1991; $114,425; 12 mo.
Jointly Funded with SOLID-STATE AND MICROSTRUCTURE RES $38,000

NSF Young Investigator: Integrating Photodetectors with Optoelectronic Devices Fabricated by Liquid Crystal Modulators into VLSI Circuits
Wagner, Kelvin; University of Colorado at Boulder, Boulder, CO 80309
ECS 9258088 A000; 08/15/1992; $25,000; 12 mo.

Conference: Organization of the Eighth Optical Fiber Sensors Conference to be held in Monterey, California on January 29 - 31, 1992.
Wangemann, Robert; Institute of Electrical & Electronic Engineers (IEEE), New York, NY 10017
ECS 9114497 A000; 02/15/1992; $4,000; 12 mo.

Visible Wavelength Optoelectronic Logic Devices
Wilmsen, Carl; Colorado State University, Fort Collins, CO 80523
ECS 9216170 A000; 08/15/1992; $50,000; 12 mo.
Jointly Funded with AIR FORCE $25,000

Chemical Sensors for Advanced Process Analysis
Yee, Sinclair; Carey, W.; University of Washington, Seattle, WA 98195
EEC 9212314 A000; 09/15/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

SGER: Experimental Study of Four-Wave Mixing InGaAs/GaAs Multiple Quantum Wells with Application to Optical Switching Devices and Solition Generation
Zhao, Yang; Wayne State University, Detroit, MI 48202
ECS 9107774 A001; 08/15/1991; $13,250; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $9,937

Quantum Electronics, Special Studies and Assessments, Plasmas and Electromagnetics

Engineering Research Center for Telecommunications
Acampora, Anthony; Columbia University, New York, NY 10027
EEC 8811111 A013; 02/15/1988; $11,865; 0 mo.

Beta-barium Borate as a Pockels Cell for Excimer Lasers
Adhav, Ratan; Quantum Technology Inc., Lake Mary, FL 32746-6212
III 9160509 A000; 01/15/1992; $49,998; 6 mo.

Tetravalent Chromium (Cr 4+) as Laser-Active Ion for Tunable Solid-State Lasers
Alfano, Robert; Research Foundation of the City University of New York, New York, NY 10036
ECS 9015486 A001; 04/15/1991; $46,508; 12 mo.

Ultrafast Dark Spatial Solitary Wave Propagation Phenomena: Physics and Device Applications
Andersen, David; University of Iowa, Iowa City, IA 52242
ECS 9105660 A000; 01/01/1992; $58,661; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

Photodynamics of Condensed Phase Rare Gas Halides: Condensed Phase Exciplex Lasers
Apkarian, V. Ara; University of California-Irvine, Irvine, CA 92717
ECS 8914321 A002; 04/01/1990; $65,579; 12 mo.

Collision Cross Sections for Electron-Impact Dominated Processes in Etching Plasmas
Becker, Kurt; CUNY City College, New York, NY 10031
CTS 9017211 A002; 06/01/1991; $70,000; 12 mo.
Jointly Funded with SPECTROSCOPY $15,000

REG: Electron Beam Lithography System
Beresford, Roderic; Kim, Kyung-Suk; Nurmikko, Arto; Xiao, Gang; Brown University, Providence, RI 02912
ECS 9213136 A000; 08/15/1992; $40,000; 12 mo.

Supplement: Waves and Chaos in the Electrodynamics of Plasmas
Bers, Abraham; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 8822475 A003; 08/01/1989; $5,000; 0 mo.

Presidential Young Investigator Award: Sources and Applications for Short Wavelength Electromagnetic Radiation
Booske, John; University of Wisconsin-Madison, Madison, WI 53706
ECS 9057675 A003; 10/01/1990; $62,500; 12 mo.

Presidential Young Investigator Award
Broschat, Shira Lynn; Washington State University, Pullman, WA 99164-3140
ECS 9058186 A002; 08/01/1990; $37,141; 0 mo.

Presidential Faculty Fellow: Numerical Studies in Wave Propagation and Scattering
Broschat, Shira Lynn; Washington State University, Pullman, WA 99164-3140
ECS 9253547 A000; 08/15/1992; $100,000; 12 mo.

RIA: Short-Pulse, Ultra-Wideband Scattering Range
Carin, Lawrence; Polytechnic University, Brooklyn, NY 11201
ECS 9211353 A000; 08/15/1992; $100,000; 36 mo.

Dynamics of Short Pulse Laser Systems
Casperson, Lee; Portland State University, Portland, OR 97207
ECS 9014481 A001; 05/01/1991; $86,527; 12 mo.

Basic Physics and Measurments of Pure Electron Plasmas in Crossed-Field Amplifiers and Micro-Field Emitter Arrays
Chan, Chung; Browning, Jim; Northeastern University, Boston, MA 02115
ECS 9120085 A000; 09/01/1991; $101,644; 12 mo.
Jointly Funded with NAVY $75,000

PYI: Monte-Carlo Simulations of Rough Surface Scattering Using Finite Element and Finite Difference Methods
Chan, Chi; University of Washington, Seattle, WA 98195
ECS 9158040 A001; 08/01/1991; $59,194; 12 mo.

REG: Industrial Applications of Plasma Science
Chen, Francis; University of California-Los Angeles, Los Angeles, CA 90024
ECS 9212432 A000; 08/15/1992; $32,170; 12 mo.

Continuously Tunable Light-to-Heavy Hole Semiconductor Laser for the Millimeter and Submillimeter Range (REU Supplement)
Coleman, Paul; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 8822123 A002; 08/15/1989; $38,000; 12 mo.
ECS 8822123 A003; 08/15/1989; $4,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,000

Presidential Young Investigator Award: Millimeter/Microwave Integrated Circuits
Compton, Richard; Cornell University - Endowed, Ithaca, NY 14853
ECS 8957839 A003; 09/15/1989; $62,500; 12 mo.

Investigation of Metal-Semiconductor and Heterojunction Devices at Tarahertz Frequencies
Crowe, T.; Mattauch, Robert; University of Virginia-Main Campus, Charlottesville, VA 22901
ECS 9113123 A001; 09/01/1991; $124,965; 12 mo.

Coherent Sources in the Vacuum Ultraviolet
Eden, J. Gary; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9022187 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
ECS 9022187 A002; 07/01/1991; $85,844; 12 mo.

Analysis of Superconducting Microwave Transmission Lines (REU SUPPLEMENT)
El-Ghazaly, Samir; Arizona State University, Tempe, AZ 85287
ECS 9108933 A001; 08/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Career Advancement Award (ROW): Determination of Optimum Wavelength for High Resolution Soft-X-Ray Microscopy Using a Laser Produced Plasma Source
Eligon, Ann Marie; University of Central Florida, Orlando, FL 32816
ECS 9201733 A000; 08/01/1992; $35,942; 12 mo.

PYI: Chiral Materials and Their Applications to Microwave and Integrated Optical Devices and Components
Engheta, Nader; University of Pennsylvania, Philadelphia, PA 19104
ECS 8957434 A003; 08/15/1989; $25,000; 12 mo.

Research Toward the Application of Real-Time Gas Electron Diffraction as a Detector for Open Tubular Capillary Gas Chromatography
Ewbank, John; Paul, David; Schafer, Lothar; University of Arkansas-Main Campus, Fayetteville, AR 72701
ECS 9002677 A001; 01/01/1991; $72,369; 12 mo.

Laser Radar Performance and Improved Beam Alignment
Frehlich, Rod; University of Colorado at Boulder, Boulder, CO 80309
ECS 9021303 A002; 09/01/1991; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750
ECS 9021303 A003; 09/01/1991; $79,786; 12 mo.

Conference: Participation Support for the First International Meeting for Wave Propagation in Random Media (Scintillation) to be held in Seattle, WA, on 8/3-7/92
Frehlich, Rod; Tatarskii, V.; University of Colorado at Boulder, Boulder, CO 80309
ECS 9215911 A000; 06/01/1992; $25,000; 12 mo.
Jointly Funded with US/USSR ACTIVITIES and PHYSICAL METEOROLOGY $12,000

Semiconductor Quantum Electron Wave Devices
Gaylord, Thomas K.; Brennan, Kevin; Glytsis, Elias; Harris, Michael H.; Martin, Kevin; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9111866 A002; 09/01/1991; $105,000; 12 mo.

Analysis of Conductorless Antennas
Glisson, Allen; Kishk, Ahmed; Kajfez, Darko; University of Mississippi, University, MS 38677
ECS 9015328 A001; 02/15/1991; $72,806; 12 mo.

Blue Phosphors for Thin Film Electroluminescent Displays
Greenwald, Anton; Spire Corporation, Bedford, MA 01730
III 9100144 A000; 09/01/1992; $249,988; 24 mo.

Dynamics of Dense X-Pinch and Z-Pinch Plasmas Produced by Pulsed Power Generators
Hammer, David; Cornell University - Endowed, Ithaca, NY 14853
ECS 9113695 A001; 09/01/1991; $98,920; 12 mo.
ECS 9113695 A002; 09/01/1991; $22,346; 0 mo.

Phase Stabilized Laser Diode
Hercher, Michael; OPTRA Inc., Beverly, MA 01915
III 9160643 A000; 01/15/1992; $49,919; 6 mo.

Helicon Wave Studies
Hershkowitz, Noah; University of Wisconsin-Madison, Madison, WI 53706
ECS 9120326 A000; 05/15/1992; $80,000; 12 mo.

PYIA: Noise, Instabilities and Coherent Dynamics of Semiconductor Laser Diodes
Hillman, Lloyd; University of Alabama in Huntsville, Huntsville, AL 35899
ECS 8996269 A004; 09/01/1989; $62,500; 12 mo.

Photonic Research for Opto-Electronics and Optical Communication Curriculum Development
Ho, Ping-Pei; Dorsinville, Roger; Ahmed, Samir; Shum, Kai; Alfano, Robert; CUNY City College, New York, NY 10031
EEC 9212310 A000; 09/15/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Range Resolved Laser Doppler Velocimetry Using a cw Laser Source and Pseudo Random Code Modulation for Range Resolution
Holmes, J. Fred; Oregon Graduate Institute of Science & Technology, Beaverton, OR 97006-1999
ECS 9115203 A000; 08/15/1992; $63,662; 12 mo.

High Definition Deformable Membrane Projection Display System
Hubbard, James; Optron Systems Inc., Bedford, MA 01730
III 9113702 A000; 05/15/1992; $249,980; 24 mo.

Wave Interactions with Random Inhomogeneous Media
Ishimaru, Akira; Chan, Chi; University of Washington, Seattle, WA 98195
ECS 9107846 A000; 01/01/1992; $71,859; 12 mo.

Presidential Faculty Fellow: X-Ray Optics
Jacobsen, Chris; SUNY at Stony Brook, Stony Brook, NY 11794-0001
ECS 9253618 A000; 08/15/1992; $100,000; 12 mo.

Generation and Detection of Ultrasonic Lamb Waves
Joshi, Shrinivas; Marquette University, Milwaukee, WI 53233
ECS 9014532 A001; 03/01/1991; $61,933; 12 mo.

SGER: Advanced Solid-State Laser with <20 Femtosecond Pulse Duration (REU SUPPLEMENT)
Kapteyn, Henry; Murnane, Margaret; Washington State University, Pullman, WA 99164-3140
ECS 9204033 A000; 05/15/1992; $49,372; 12 mo.
Jointly Funded with AIR FORCE $24,636
ECS 9204033 A001; 05/15/1992; $2,500; 0 mo.

NYI: Studies of Ultrafast Processes Using High-Intensity and Short-Wavelength Light
Kapteyn, Henry; Washington State University, Pullman, WA 99164-3140
ECS 9257212 A000; 08/15/1992; $25,000; 12 mo.

PYIA: Computer Modeling of Microstrip Interconnects in mm-Waves
Katehi, Linda; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 8657951 A007; 06/15/1987; $37,500; 0 mo.

Q-Switched Operation of Microchip Laser Composite Cavities
Keszenheimer, James; MICRACOR Inc., Concord, MA 01742
III 9160139 A000; 01/15/1992; $50,000; 6 mo.

REG: Conversion of Highly Stabilized CW Ring Dye Laser to Titanium Sapphire
Khitrova, Galina; Gibbs, Hyatt; University of Arizona, Tucson, AZ 85721
ECS 9212832 A000; 09/01/1992; $36,100; 12 mo.

Transient and Stationary Multiwave Mixings in Highly Nonlinear Thin Materials
Khoo, Iam-Choon; Pennsylvania State Univ.-University Park, University Park, PA 16801
ECS 8920830 A002; 07/01/1990; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750
ECS 8920830 A003; 07/01/1990; $57,000; 12 mo.

REU: Acousto-Optics
Korpel, Adrianus; University of Iowa, Iowa City, IA 52242
ECS 9015609 A002; 04/01/1991; $64,874; 12 mo.

PYI: Millimeter Wave and Microwave Remote Sensing
Kuga, Yasuo; University of Washington, Seattle, WA 98195
ECS 9296066 A000; 01/01/1992; $89,452; 4 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $6,000
ECS 9296066 A001; 01/01/1992; $13,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $6,499
ECS 9296066 A002; 01/01/1992; $25,000; 12 mo.

Photon Duplication
Kumar, Prem; Yuen, Horace; Northwestern University, Evanston, IL 60208
ECS 9106599 A000; 01/01/1992; $88,041; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,468

Modeling of Remote Plasma Assisted Materials Processing: Electron Transport and Selective Chemistry
Kushner, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9109326 A001; 09/01/1991; $4,450; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,337
ECS 9109326 A002; 09/01/1991; $72,532; 12 mo.
Jointly Funded with PROCESS AND REACTION ENGINEERING $47,500

Particles in rf Plasma Processing Discharges: Generation, Transport and Plasma Dynamics
Kushner, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9113215 A002; 08/15/1991; $73,105; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC $24,368

Ultrafast Optical Switching in High Temperature Superconducting Films
Kwok, Hoi-Sing; SUNY at Buffalo, Buffalo, NY 14260
ECS 9017053 A001; 03/15/1991; $80,182; 12 mo.

New Methods for Imaging into and Through Inhomogeneous Media
Leith, Emmett; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 9000571 A004; 06/01/1990; $40,924; 0 mo.
ECS 9000571 A005; 06/01/1990; $77,977; 12 mo.

Calculations of Photonic Band Structure
Leung, Kok; Polytechnic University, Brooklyn, NY 11201
ECS 9113953 A000; 04/15/1992; $56,935; 12 mo.

Research in Intrinsic Stochasticity
Lichtenberg, Allan; Lieberman, Michael; University of California-Berkeley, Berkeley, CA 94720
ECS 8910762 A002; 01/01/1990; $85,380; 12 mo.
Jointly Funded with THEORETICAL PHYSICS $15,000

Dynamic of R.F. Discharges for Materials Etching (REU SUPPLEMENT)
Lieberman, Michael; Lichtenberg, Allan; University of California-Berkeley, Berkeley, CA 94720
ECS 8910827 A002; 01/15/1990; $87,000; 12 mo.
ECS 8910827 A003; 01/15/1990; $7,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $2,812

Nonlinear Wave Plasma Experiments
Lonngren, Karl; University of Iowa, Iowa City, IA 52242
ECS 9006921 A002; 01/01/1991; $77,000; 12 mo.

Research Initiation: Ultrashort Laser Pulse Amplification (REU SUPPLEMENT)
MacFarlane, Duncan; University of Texas at Dallas, Richardson, TX 75083-0688
ECS 9006472 A002; 08/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

RUI: Space Charge Effects in Laser Photoelectron Devices
Massey, Gail; San Diego State University Foundation, San Diego, CA 92182-1900
ECS 9120316 A000; 08/15/1992; $49,823; 12 mo.

Plasma and Microwave Physics of ECR Sources
Mauel, Michael; Columbia University, New York, NY 10027
ECS 8912756 A002; 04/01/1990; $50,515; 12 mo.

Fine Scale Remote Sensing of Clouds Using Millimeter Wave Radars
McIntosh, Robert; University of Massachusetts-Amherst, Amherst, MA 01003
ATM 8921145 A002; 03/15/1990; $149,200; 12 mo.

High Flux VUV and Atomic Oxygen Source Used as a Photoresist Asher
Meyer, Jack; Quantum Research Corporation, Fort Collins, CO 80525-3134
III 9160366 A000; 01/15/1992; $49,924; 6 mo.

Presidential Young Investigator Award: Ultrashort Laser-Matter Interactions
Milchberg, Howard; University of Maryland-College Park, College Park, MD 20742
ECS 8858062 A010; 08/15/1988; $18,773; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
ECS 8858062 A011; 08/15/1988; $25,000; 12 mo.

REG: Soft X-Ray Spectrometer
Milchberg, Howard; University of Maryland-College Park, College Park, MD 20742
ECS 9212444 A000; 08/15/1992; $27,112; 12 mo.

Silicon Flat Panel Displays
Namavar, Fereydoon; Spire Corporation, Bedford, MA 01730
III 9161265 A000; 01/15/1992; $49,993; 6 mo.

Ultrafast High Intensity Optical Effects in New II-VI Compound Semiconductor Microstructures
Nurmikko, Arto; Brown University, Providence, RI 02912
ECS 8916026 A002; 04/01/1990; $99,000; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $35,000

Thermal Properties of Vertical-Cavity Surface-Emitting Diode Lasers and Arrays
Osinski, Marek; University of New Mexico, Albuquerque, NM 87131
CTS 9108297 A000; 03/15/1992; $59,489; 12 mo.

Research Initiation: Negative Ion and Modulated Discharge Processing Studies (REU SUPPLEMENT)
Overzet, Lawrence; University of Texas at Dallas, Richardson, TX 75083-0688
ECS 9009662 A002; 09/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

NYI: Pulsed Discharge Processing
Overzet, Lawrence; University of Texas at Dallas, Richardson, TX 75083-0688
ECS 9257383 A000; 08/15/1992; $25,000; 12 mo.

Travel Support: 20th International Congress on High Speed Photography and Photonics: September 21-25, 1992, Support for Graduate Students and Post-Doctoral Fellows
Paisley, Dennis; Montonye, James; Society of Photo-Optical Instrumentation Engineers, Bellingham, WA 98227
ECS 9216058 A000; 08/01/1992; $5,000; 4 mo.

REG: Nd: YAG Laser
Pender, John; University of Alaska-Fairbanks Campus, Fairbanks, AK 99775-0900
ECS 9212299 A000; 09/15/1992; $50,000; 12 mo.

SGER: Finite Difference Time Domain Techniques Applied to Periodic Problems in Electromagnetics
Pozar, David; University of Massachusetts-Amherst, Amherst, MA 01003
ECS 9122924 A000; 01/01/1992; $23,479; 12 mo.
Jointly Funded with COMPUTATIONAL ENGINEERING $11,739

Conference: Organization of the 1992 Integrated Photonics Research Topical Meeting held in New Orleans, Louisiana on April 13-15, 1992
Quinn, Jarus; Optical Society of America, Washington, DC 20036
ECS 9206896 A000; 06/15/1992; $5,000; 12 mo.

Conference: Organization of the 1992 Soft-X-Ray Projection Lithography Topical Meeting to be held in Monterey, CA, on April 6-8, 1992.
Quinn, Jarus; Optical Society of America, Washington, DC 20036
ECS 9215288 A000; 05/01/1992; $4,000; 12 mo.
Jointly Funded with SOLID-STATE AND MICROSTRUCTURE RES $2,000

Conference: Organization of the 1992 Surface Roughness and Scattering Topical Meeting to be held in Tucson, Arizona on June 1-3, 1992.
Quinn, Jarus; Optical Society of America, Washington, DC 20036
ECS 9216232 A000; 06/15/1992; $4,600; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT and SURFACE ENGINEERING AND TRIBOLOGY $3,000

Conference: Organization of the International Ultrafast Phenomena Conference to be held in Antibes, France
Quinn, Jarus; Optical Society of America, Washington, DC 20036
ECS 9216362 A000; 06/01/1992; $9,000; 12 mo.
Jointly Funded with SPECTROSCOPY and PHYSICS-OTHER $6,000

Organization of 1992 Nonlinear Optics: Materials, Fundamental, and Applications Topical Meeting (Maui, Hawaii August 17-21, 1992)
Quinn, Jarus; Optical Society of America, Washington, DC 20036
ECS 9218185 A000; 07/15/1992; $5,000; 12 mo.

Presidential Young Investigator Award: Millimeter-Wave Integrated Antennas and Receivers
Rebeiz, Gabriel; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 9158499 A001; 07/15/1991; $59,026; 12 mo.

Laser Pulse-Probe Techniques for Investigating Physical Processes of Ions in Solids
Reeves, Roger; Oklahoma State University, Stillwater, OK 74078
DMR 9103648 A002; 09/01/1991; $40,000; 12 mo.

Ultrashort Pulse Propagation and Amplification in New Cr-Doped LiSAF and LiCAF Solid State Laser Materials
Richardson, Martin; Chai, Bruce; Bass, Michael; Silfvast, William; University of Central Florida, Orlando, FL 32816
ECS 9113726 A001; 08/15/1991; $114,022; 12 mo.

Study of the Dynamics of Highly Ionized Capillary Discharge Plasmas for XUN Lasers
Rocca, Jorge; Colorado State University, Fort Collins, CO 80523
ECS 9013372 A001; 02/15/1991; $9,950; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,462
ECS 9013372 A002; 02/15/1991; $68,446; 12 mo.

Presidential Young Investigator Award: Picosecond Electronic Circuits
Rodwell, Mark; University of California-Santa Barbara, Santa Barbara, CA 93106
ECS 8958327 A003; 08/01/1989; $62,500; 12 mo.

Controlling Chaos in Semiconductor and Diode-Pumped Solid State Lasers
Roy, Rajarshi; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9114232 A000; 06/01/1992; $66,112; 12 mo.

MRI: Finite Element Analysis of High Speed InP/no.53 GaO.47 as P-I-N Photodetector Structures
Russell, Jimmie; Ohio State University Research Foundation, Columbus, OH 43210
ECS 9111257 A000; 05/15/1992; $150,000; 36 mo.
Jointly Funded with COMPUTATIONAL ENGINEERING and HUMAN RESOURCES DEVELOPMENT $131,250

Research on Novel Short-Wavelength, Short Pulse Laser Systems
Sauerbrey, Roland; Young, James; William Marsh Rice University, Houston, TX 77252
ECS 9114744 A000; 02/01/1992; $93,000; 12 mo.

Analysis and Design of Interconnects for Microelectronics Applications (Minority Research Initiation)
Schutt-Aine, Jose; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 8913116 A003; 12/15/1989; $79,712; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $59,784

Control of Plasma Instabilities
Sen, Amiya; Navratil, Gerald; Columbia University, New York, NY 10027
ECS 9004238 A002; 09/01/1990; $88,000; 12 mo.

Conference: Future Directions in Plasma Engineering to be held in New York, N.Y., Summer 1992
Sen, Amiya; Columbia University, New York, NY 10027
ECS 9217626 A000; 06/01/1992; $7,302; 6 mo.

SGER: Laser Beam-Pulse Characterization Using Phase-Space Concepts
Siegman, Anthony; Stanford University, Stanford, CA 94305
ECS 9209081 A000; 05/01/1992; $23,068; 12 mo.

Fifth International Vacuum Microelectronics Conference, Vienna, Austria, (July 13-17, 1992) Travel Support for Former Soviet Union Scientists
Spindt, Charles; Gray, Henry; SRI International, Menlo Park, CA 94025
ECS 9221611 A000; 08/01/1992; $10,000; 6 mo.
Jointly Funded with SOLID-STATE AND MICROSTRUCTURE RES $5,000

SGER: Chaos in Electromagnetic Systems
Sridhar, Srinivas; Northeastern University, Boston, MA 02115
ECS 9114815 A001; 08/15/1991; $4,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,000

The Dynamics of Quantum Well Semiconductor Lasers
Su, Chin; Texas A&M University Research Foundation, College Station, TX 77843
ECS 9112848 A000; 12/15/1991; $28,493; 12 mo.

Table Top Soft X-Ray Laser
Suckewer, Szymon; Skinner, Charles; Princeton University, Princeton, NJ 08544
ECS 9115426 A000; 09/01/1992; $100,000; 12 mo.

Correlation Between the Surface Properties and the Breakdown Phenomena of Alumina Ceramics
Sudarshan, Tangali; University of South Carolina at Columbia, Columbia, SC 29208
DMR 9113500 A000; 02/15/1992; $75,000; 12 mo.

A Study of Superposed Volume Gratings for Optics Applications
Tamir, Theodor; Polytechnic University, Brooklyn, NY 11201
ECS 9024504 A002; 07/15/1991; $86,705; 12 mo.

Femtosecond Optical Parametric Oscillators and UV Sources and Ultrafast Processes in Semiconductors
Tang, C.; Cornell University - Endowed, Ithaca, NY 14853
ECS 9108570 A000; 03/15/1992; $78,928; 12 mo.
ECS 9108570 A001; 03/15/1992; $20,000; 0 mo.

Emerging Optoelectronic Technologies, Indo-U.S. Conference, December 1991, Bangalore, India
Tripathi, Vijai; Oregon State University, Corvallis, OR 97331-5503
INT 9020210 A000; 12/15/1991; $10,000; 12 mo.
Jointly Funded with LIGHTWAVE TECHNOLOGY $2,500

Solution of Inverse Problems in Electromagnetic and Optical Propagation Using Artificial Neural Networks
Tsang, Leung; Ishimaru, Akira; Hwang, Jenq-Neng; University of Washington, Seattle, WA 98195
ECS 9014243 A002; 03/01/1991; $76,000; 12 mo.
Jointly Funded with NEUROENGINEERING $25,000

Dispersion of Optical Nonlinearities in Solids
Van Stryland, Eric; Hagan, David; Sheik-Bahae, Mansoor; Soileau, Marion; University of Central Florida, Orlando, FL 32816
ECS 9120590 A000; 04/15/1992; $80,000; 12 mo.
ECS 9120590 A001; 04/15/1992; $35,685; 0 mo.
Jointly Funded with FSU SUPPLEMENTS $8,000

Thin Flim Squids of High TC Materials
Vittoria, Carmine; Northeastern University, Boston, MA 02115
ECS 9011618 A001; 03/01/1991; $114,425; 12 mo.
Jointly Funded with LIGHTWAVE TECHNOLOGY and SOLID-STATE AND MICROSTRUCTURE RES $76,000

SGER: Optical Parametric Processes in Ferroelectric Liquid Crystal Filled Capillary Tube Waveguides
Walba, David; Arnett, Kenneth; University of Colorado at Boulder, Boulder, CO 80309
ECS 9214865 A000; 08/15/1992; $25,000; 6 mo.

Conference: Organization of the Eighth Optical Fiber Sensors Conference to be held in Monterey, California on January 29-31, 1992
Wangemann, Robert; Institute of Electrical & Electronic Engineers (IEEE), New York, NY 10017
ECS 9114497 A000; 02/15/1992; $4,000; 12 mo.
Jointly Funded with LIGHTWAVE TECHNOLOGY $2,000

PYI: Superconducting Devices for Submillimeter Electronics
Wengler, Michael; University of Rochester, Rochester, NY 14627
ECS 8857868 A006; 10/01/1988; $46,150; 12 mo.

Antenna-Coupled Pyroelectric Detectors for Far-Infrared Radiation Detection (REU SUPPLEMENT)
Wentworth, S.; Auburn University, Auburn, AL 36849
ECS 9108882 A001; 08/15/1991; $4,472; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,354

RIA: Effective Media Characterization and Optimization of Optically Active Composite Materials: Applications from Microwave to Optical Frequencies
Whites, Keith; Kentucky Research Foundation, Lexington, KY 40506
ECS 9210551 A000; 09/01/1992; $100,000; 36 mo.

RIA: Near Field Photodetection Optical Microscopy and Spectroscopy
Williams, Clayton; University of Utah, Salt Lake City, UT 84112
ECS 9212407 A000; 09/01/1992; $100,000; 36 mo.

Nonlinear Dynamics of Phase-Locked Semiconductor Laser Arrays
Winful, Herbert; DeFreez, Richard; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 8906214 A002; 03/15/1990; $123,614; 12 mo.
Jointly Funded with AIR FORCE-NONLINEAR DYNAMICS $75,000

New Q-Switched Devices for Infrared Solid State Lasers
Young, Eddie; NEOS Incorporated, Melbourne, FL 32934
III 9161348 A000; 01/15/1992; $49,995; 6 mo.

High Voltage Conduction and Breakdown Phenomena in Dielectrics
Zahn, Markus; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 8913605 A003; 12/15/1989; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
ECS 8913605 A004; 12/15/1989; $76,000; 12 mo.
Jointly Funded with POWER SYSTEMS $25,300

Solid-State and Microstructures Program

Microelectromechanical Research

Low-Cost Technologies for Microelectromechanical Systems
Allen, Mark; Rohatgi, Ajeet; Jokerst, Nan; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9117074 A001; 08/15/1991; $192,722; 12 mo.

Resonant Beam Silicon Accelerometers
Allen, Henry; Silicon Microstructures Inc., Fremont, CA 94539
III 9161136 A000; 01/15/1992; $47,117; 6 mo.

A System for Micro-Mechanical Spring Design
Antonsson, Erik; Tai, Yu-Chong; California Institute of Technology, Pasadena, CA 91125
ECS 9023646 A001; 08/15/1991; $75,260; 12 mo.

REU Supplement: Mesoscale Heat Exchangers
Bau, Haim; Zemel, Jay; University of Pennsylvania, Philadelphia, PA 19104
CTS 9012904 A003; 09/15/1990; $80,000; 12 mo.

Computational Modeling of Transport Phenomena and Electro-Mechanical Dynamics in Microscales
Cho, Dongil; Karniadakis, George; Princeton University, Princeton, NJ 08544
ECS 9023760 A001; 07/15/1991; $153,271; 12 mo.

Experimental Studies of Photorefractive Polymers
Ducharme, Stephen; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
ECS 9209941 A000; 10/01/1992; $11,450; 36 mo.

Research on Micromechanics and Micromagnetics Based on X-Ray Lithography and Electrodeposition of Metal Structures
Guckel, Henry; Chapman, Thomas; Lovell, Edward; University of Wisconsin-Madison, Madison, WI 53706
ECS 9116566 A001; 09/01/1991; $200,000; 12 mo.

High Order Crystal Plane Selectivity in Silicon Anisotropic Wet Etching
Hesketh, Peter; University of Illinois at Chicago, Chicago, IL 60680
ECS 9121862 A000; 07/15/1992; $68,916; 12 mo.

Presidential Young Investigator Award
Indeck, Ronald; Washington University, St. Louis, MO 63130
ECS 8957148 A003; 08/15/1989; $37,500; 12 mo.
ECS 8957148 A004; 08/15/1989; $4,995; 0 mo.
ECS 8957148 A005; 08/15/1989; $62,500; 0 mo.

Micro Electro Mechanical Systems for NSF/NASA/DOD Applications Workshop
Jacobsen, Stephen; Wood, J.; University of Utah, Salt Lake City, UT 84112
ECS 9106811 A000; 09/01/1992; $70,000; 12 mo.
Jointly Funded with ROBOTICS AND MACHINE INTELLIGE $5,000

SGER: Modeling of Surfaces of Micro Electro Mechanical Devices with Fractals
Jara-Almonte, James; Clemson University, Clemson, SC 29634
ECS 9215632 A000; 06/01/1992; $11,993; 3 mo.

SGER: Modeling of Surfaces of Micro Electro Mechanical Devices with Fractals
Jara-Almonte, James; Louisiana Tech University, Ruston, LA 71272
ECS 9396031 A000; 08/27/1992; $37,200; 16 mo.

Microstructural Modeling and Probabilistic Prediction of Micro-Electro-Mechanical Systems Response
Johnson, George; Der Kiureghian, Armen; Ferrari, Mauro; University of California-Berkeley, Berkeley, CA 94720
ECS 9023714 A001; 08/01/1991; $187,606; 12 mo.

IC-Processed Diaphragm Transducers
Kim, Eun; University of Hawaii-Manoa, Honolulu, HI 96822
ECS 9111229 A001; 08/15/1991; $10,000; 0 mo.

Theoretical Modeling of Micro-Electro-Mechanical Systems
Ko, Wen; Hoffman, Richard; Mehregany, Mehran; Mullen, Robert; Case Western Reserve University, Cleveland, OH 44106
ECS 9023711 A001; 06/15/1991; $104,320; 12 mo.

Proposal for Basic Research on Micro Electro-Mechanical Systems
Lang, Jeffrey; Mehregany, Mehran; Senturia, Stephen; Ko, Wen; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9109343 A001; 09/15/1991; $286,796; 0 mo.
Jointly Funded with ROBOTICS AND MACHINE INTELLIGE $20,000

The Intergration of Sensors into the Electrical Engineering Curriculum
Lec, Ryszard; Vetelino, John; University of Maine, Orono, ME 04469-0114
EEC 9212125 A000; 09/15/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION $290,000

Microdynamics and Nanodynamics: Materials, Structures and Devices
MacDonald, Noel; Thomas, Robert; Cornell University - Endowed, Ithaca, NY 14853
ECS 8915277 A003; 08/15/1989; $104,200; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $12,100

1992 Solid-State Sensors and Actuators Workshop - Participant Support - Hilton Head, South Carolina, June 1992
Muller, Richard; University of California-Berkeley, Berkeley, CA 94720
ECS 9208793 A000; 05/01/1992; $18,000; 12 mo.

NSF Young Investigator
Najafi, Khalil; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 9257400 A000; 09/01/1992; $25,000; 12 mo.

Self-Assembling Microstructures with Application to Precision Resonant-Structure Micromotors
Pisano, Albert; Howe, Roger; University of California-Berkeley, Berkeley, CA 94720
ECS 8915128 A003; 09/01/1989; $86,300; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT and MANUFACTURING MACHINES AND EQUIP $36,300

Presidential Young Investigator Award: Integrated Sensors Research (REU Supplement Included)
Polla, Dennis; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 8814651 A004; 07/01/1987; $67,500; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750

Microfabrication of the Scanning Tunneling Microscope
Quate, Calvin; Stanford University, Stanford, CA 94305
ECS 8917552 A002; 06/01/1990; $129,820; 12 mo.
Jointly Funded with INSTRUMENTAT AND INSTRUMENT DEVP $64,910

PYI: Physics and Technology of Microdynamics
Reed, Michael; Carnegie-Mellon University, Pittsburgh, PA 15213
ECS 8958382 A006; 09/01/1989; $62,500; 12 mo.

1992 MEMS Workshop Travel Assistance
Reed, Michael; Carnegie-Mellon University, Pittsburgh, PA 15213
ECS 9200969 A000; 01/01/1992; $25,000; 12 mo.

1993 MEMS Workshop Travel Assistance, Ft. Lauderdale, FL, February 7-10, 1993
Reed, Michael; Carnegie-Mellon University, Pittsburgh, PA 15213
ECS 9217635 A000; 07/15/1992; $14,786; 12 mo.

Educational and Research Infrastructure Development in Microelectromechanical Systems
Robbins, William; Erdman, Arthur; Polla, Dennis; Francis, Lorraine; University of Minnesota-Twin Cities, Minneapolis, MN 55415
EEC 9212159 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

PYI: Process Technologies for Micromachined Devices
Schmidt, Martin; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9157308 A001; 07/15/1991; $100,000; 12 mo.

Microfabricated Surface Plasmon Sensor
Smith, Rosemary; Spencer, Richard; Knoesen, Andre; University of California-Davis, Davis, CA 95616-8671
ECS 9012590 A002; 08/01/1990; $166,644; 12 mo.

A Caltech Micromachining Laboratory
Tai, Yu-Chong; Pine, Jerome; Bower, James; Rutledge, David; Culick, F.; California Institute of Technology, Pasadena, CA 91125
BIR 9011172 A001; 12/15/1990; $121,736; 12 mo.
Jointly Funded with COGNITIVE NEUROBIOLOGY $25,434

PYI: An Integrated Tunneling Accelerometer
Tai, Yu-Chong; California Institute of Technology, Pasadena, CA 91125
ECS 9157844 A001; 08/01/1991; $99,000; 12 mo.

Study of a Surface Acoustic Wave Microsensor for Gas Detection
Vetelino, John; Dwyer, Daniel; Grunze, Michael; University of Maine, Orono, ME 04469-0114
ECS 9019551 A001; 03/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
ECS 9019551 A002; 03/15/1991; $109,999; 12 mo.

Development of MEMS Technologies
Warrington, Robert; Louisiana Tech. University, Ruston, LA 71272
ECS 9214082 A000; 04/15/1992; $2,110; 6 mo.

Solid-State and Microstructure Research

The Quantum Modulated Transistor: Fabrication and Characterization
Adesida, Ilesanmi; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9010035 A001; 07/01/1990; $4,125; 0 mo.

Materials and Processes for Nanoelectronics
Adesida, Ilesanmi; Hsieh, Kuang-Chien; Cheng, Keh-Yung; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9202294 A000; 08/15/1992; $150,000; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $67,000

Cryogenic Processing of Schottky Contacts to III-V Semiconductors
Anderson, Wayne; SUNY at Buffalo, Buffalo, NY 14260
ECS 9122251 A000; 09/01/1992; $66,000; 12 mo.

Electrodynamics of Proximity Coupled Superconductor/Normal Metal Bilayers and Multilayers
Anlage, Steven; University of Maryland-College Park, College Park, MD 20742
DMR 9123198 A000; 09/01/1992; $50,000; 12 mo.

Reflection High Energy Electron Spectroscopy During Epitaxial Growth
Atwater, Harry; Ahn, Channing; Grunthaner, Frank; California Institute of Technology, Pasadena, CA 91125
DMR 9202587 A000; 08/15/1992; $150,000; 12 mo.

Undergraduate Materials Education Initiative: Emerging Electronic and Photonic Materials Synthesis and Processing Technology
Auner, Gregory; Zhao, Yang; Mitin, Vladimir; Wayne State University, Detroit, MI 48202
DMR 9218096 A000; 10/01/1992; $300,000; 36 mo.
Jointly Funded with ELECTRONIC MATERIALS and SOLID STATE PHYSICS $150,000

Microlithographic Manipulation of Macromolecules
Austin, Robert; Cox, Edward; Princeton University, Princeton, NJ 08544
MCB 9202170 A000; 09/01/1992; $190,000; 12 mo.

Engineering Foundation's Conference on Atomic and Nanoscale Modification of Materials: Fundamentals and Applications, Ventura, CA., Aug. 16-21, 1992
Avouris, Phaedon; United Engineering Trustees Inc., New York, NY 10017
ECS 9214928 A000; 08/01/1992; $5,000; 12 mo.

Presidential Young Investigator Award: High Speed Optoelectronic Devices and VLSI Structures by Laser Enhanced Epitaxy
Banerjee, Sanjay Kumar; University of Texas at Austin, Austin, TX 78712
ECS 8858352 A004; 08/01/1988; $62,500; 12 mo.

Upgrade an Existing 4-Target Sputtering System
Barnard, John; Watson, Mark; The University of Alabama, Tuscaloosa, AL 35487-2856
ECS 9212957 A000; 09/01/1992; $40,000; 12 mo.

RF Superconductivity and Devices
Beasley, Malcolm; Stanford University, Stanford, CA 94305
ECS 9214592 A000; 09/15/1992; $42,905; 12 mo.

Atomic Layer Epitaxy of S-Doped FETs
Bedair, S.; Hauser, John; North Carolina State University at Raleigh, Raeigh, NC 27695-8208
ECS 8822892 A002; 07/01/1989; $98,195; 12 mo.

Presidential Faculty Fellow
Bernstein, Gary; University of Notre Dame, Notre Dame, IN 46556
ECS 9253580 A000; 09/01/1992; $100,000; 12 mo.

Presidential Young Investigator Awards
Bidstrup, Sue Ann; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9058560 A002; 09/01/1990; $62,500; 12 mo.

PYI: Modeling of Three Terminal High-Speed Semiconductor Devices
Brennan, Kevin; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 8857382 A005; 08/15/1988; $62,500; 12 mo.

Investigation of Semiconductor Inner Lead Bonds
Busch-Vishniac, Ilene; Masada, Glenn; University of Texas at Austin, Austin, TX 78712
ECS 9105325 A001; 09/01/1991; $80,000; 12 mo.

Synthesis, Processing, and Physical Properties of Low-Dimensional Structures
Cammarata, Robert; Chien, Chia-Ling; Searson, Peter; Johns Hopkins University, Baltimore, MD 21218
ECS 9202222 A000; 09/01/1992; $150,000; 12 mo.

Presidential Young Investigator Award for MOCVD System
Campbell, Stephen; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 8957918 A003; 09/01/1989; $62,500; 12 mo.

Low-Frequency Noise Measurements as a Characterization and Testing Tool in Solid-State Devices
Celik-Butler, Zeynep; Southern Methodist University, Dallas, TX 75275
ECS 9116209 A000; 09/01/1992; $94,060; 12 mo.

X-Ray Lithography Process Studies
Cerrina, F.; University of Wisconsin-Madison, Madison, WI 53706
ECS 8921165 A002; 06/01/1990; $118,000; 12 mo.

Plasma Immersion Ion Implantation for Surface Material Synthesis
Cheung, Nathan; Gustafson, Ture; Lieberman, Michael; Birdsall, Charles; University of California-Berkeley, Berkeley, CA 94720
ECS 9202993 A000; 08/15/1992; $167,000; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $67,000

Nanofabrication and Nanoscale Devices
Chou, Stephen; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 9116778 A000; 08/15/1992; $100,000; 12 mo.

Wavelength Tunable Sub-Picosecond Ti:Sapphire Laser System
Chou, Stephen; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 9212960 A000; 09/01/1992; $79,333; 12 mo.

RIA: Circuit-Level Hot-Electron Reliability
Chung, James; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9209338 A000; 08/01/1992; $100,000; 36 mo.

Investigation of Metal-Semiconductor and Heterojunction Devices at Tarahertz Frequencies
Crowe, T.; Mattauch, Robert; University of Virginia-Main Campus, Charlottesville, VA 22901
ECS 9113123 A001; 09/01/1991; $124,965; 12 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $62,482

2-D Quantum Device Simulation Using Non-equilibrium Green Functions
Datta, Supriyo; Purdue University Research Foundation, West Lafayette, IN 47907
ECS 9201446 A000; 09/01/1992; $65,000; 12 mo.

PYI: Heterostructure Device Research
del Alamo, Jesus; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9157305 A001; 08/01/1991; $62,500; 12 mo.

Engineering Research Equipment: Superconducting Magnet for Electron Waveguide Device Research
del Alamo, Jesus; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9212302 A000; 07/15/1992; $16,205; 12 mo.

Materials Development and Processing for Fabrication of a Microdynamical Optical Switch
Denton, Denice; McCaughan, Leon; University of Wisconsin-Madison, Madison, WI 53706
ECS 9215070 A000; 08/01/1992; $295,610; 36 mo.

Normal-Incidence Multiple Quantum-Well Infared Detectors
Eastman, Lester; Cornell University - Endowed, Ithaca, NY 14853
ECS 9217579 A000; 09/01/1992; $31,500; 12 mo.

Chemical Sensors for CVD Processing
Ellis, Arthur; Keuch, Thomas; University of Wisconsin-Madison, Madison, WI 53706
CTS 9202699 A000; 09/01/1992; $162,000; 12 mo.
Jointly Funded with MATERIALS SYNTHESIS AND PROCESSN $54,000

An Interdisciplinary Approach to the Synthesis, Measurement and Optimization of Polyimide Properties for Multi-Chip Module Substrates
Farris, Richard; University of Massachusetts-Amherst, Amherst, MA 01003
ECS 9202696 A000; 08/15/1992; $150,000; 12 mo.

PYI: Ultrafast Optics and Electronics with Semiconductors
Fauchet, Philippe; University of Rochester, Rochester, NY 14627
ECS 9196000 A003; 09/01/1990; $35,879; 0 mo.

Research Initiation Award: Microfabrication of Electron Optical Components
Feinerman, Alan; University of Illinois at Chicago, Chicago, IL 60680
ECS 9009842 A001; 07/01/1990; $10,000; 0 mo.

Undergraduate Materials Education Initiative: Development and Implementation of a New Materials Synthesis and Processing Laboratory
Flemings, Merton; Rubner, Michael; Massachusetts Institute of Technology, Cambridge, MA 02139
DMR 9218128 A000; 10/01/1992; $350,000; 36 mo.
Jointly Funded with METALLURGY and CERAMICS $175,000

Semiconductor Quantum Electron Wave Devices
Gaylord, Thomas K.; Brennan, Kevin; Glytsis, Elias; Harris, Michael H.; Martin, Kevin; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9111866 A001; 09/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
ECS 9111866 A002; 09/01/1991; $105,000; 12 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $52,500

Low Energy Electron Enhanced Etching of Semiconductors for Damage-Free Fabrication of Nanometer-Scale Quantum Devices
Gillis, Harry; Martin, Kevin; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DMR 9202879 A000; 09/15/1992; $90,000; 13 mo.

Novel Titanium Source Reagents for Indium Phosphide Doping
Gordon, Douglas; Advanced Technology Materials Inc., Danbury, CT 06810-4131
III 9161230 A000; 01/15/1992; $50,000; 6 mo.

Presidential Faculty Fellow
Guido, Louis; Yale University, New Haven, CT 06520
ECS 9253760 A000; 08/15/1992; $100,000; 12 mo.
Jointly Funded with LIGHTWAVE TECHNOLOGY $50,000

NSF Young Investigator
Halas, Naomi J.; William Marsh Rice University, Houston, TX 77252
ECS 9258118 A000; 08/15/1992; $25,000; 12 mo.

Conventional and Coherent Quantum 1/f Effects in Solid State Electronic Devices and Microstructures
Handel, Peter; University of Missouri-St. Louis, St. Louis, MO 63121
ECS 9207844 A000; 08/01/1992; $62,000; 12 mo.

Conference: 5TH Van det Zeil Symposium on Quantum 1/f Noise and Other Low Frequency Fluctuations in Electronic Devices to be held at the University of Missouri on May 22-23, 1992.
Handel, Peter; University of Missouri-St. Louis, St. Louis, MO 63121
ECS 9211786 A000; 05/01/1992; $10,500; 6 mo.

A National Center for Computational Electronics
Hess, Karl; Ravaioli, Umberto; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9122768 A000; 08/15/1992; $147,894; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS $25,000

Nanometer Tunneling and Coherent Wave Quantum Devices
Higgins, Richard; Martin, Kevin; Georgia Tech Research Corporation - GA Tech Research Institute, Atlanta, GA 30332
ECS 8922512 A002; 07/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

PYI: Application of Microelectronic Techniques to Biomedical Ultrasound and Acoustic Charge Transport Devices
Hunt, William; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 8957044 A004; 08/15/1989; $62,500; 12 mo.

ROW: Complementary Pseudomorphic Heterojunction Bipolar Transistors
Ikossi-Anastasiou, Kiki; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
ECS 9210676 A000; 09/15/1992; $18,000; 18 mo.

Novel Photoactive Process for Microlithographic Applications
Johnson, Donald; Microlithography Consulting Co. Inc., Brookline Village, MA 02147
III 9160982 A000; 01/15/1992; $49,552; 6 mo.

The Bipolar Fluxonic Transistor: Exploratory Development of a Novel Superconducting Device
Kadin, Alan; University of Rochester, Rochester, NY 14627
ECS 9122679 A000; 08/15/1992; $41,600; 12 mo.

Photon-Assisted Vortex Depairing in Thin Superconducting Films
Kadin, Alan; Donaldson, William; University of Rochester, Rochester, NY 14627
DMR 9122727 A000; 07/01/1992; $72,200; 12 mo.
Jointly Funded with CERAMICS $40,000

Single Electron Transistors
Kastner, M.; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9203427 A000; 09/01/1992; $100,000; 12 mo.

RIA: Advanced Numerical Modeling of Semiconductor Devices
Korman, Can; George Washington University, Washington, DC 20052
ECS 9209341 A000; 09/01/1992; $100,000; 36 mo.

Engineering Research Center for the Carnegie Mellon Data Storage Systems Center
Kryder, Mark; Carnegie-Mellon University, Pittsburgh, PA 15213
EEC 8907068 A005; 04/15/1990; $2,470,565; 12 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS and HUMAN RESOURCES DEVELOPMENT $45,000

Presidential Young Investigator Award
Kuhn, Kelin; University of Washington, Seattle, WA 98195
ECS 9158036 A001; 08/15/1991; $62,500; 12 mo.

Novel Toroidal Electron Cyclotron Resonance Reactor for Semiconductor Materials Processing
Lane, Barton; Plasma Dynamics, Belmont, MA 02178
III 9160132 A000; 01/01/1992; $50,000; 6 mo.

Tensile Strain and Quantum Size Effects in III-V Semiconductor Material Systems
Lau, Kei; Anderson, Neal; University of Massachusetts-Amherst, Amherst, MA 01003
ECS 8911995 A003; 08/15/1989; $4,180; 0 mo.

Particle Transport and Nonlinear Dynamics in Quasi-One-Dimensional Structures
Leburton, Jean-Pierre; Adesida, Ilesanmi; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9108300 A001; 09/01/1991; $90,000; 12 mo.

RIA: Very High Dielectric Constant Ferroelectrics for ULSI DRAM Cells
Lee, Jack Chung-Y; University of Texas at Austin, Austin, TX 78712
ECS 9211351 A000; 09/01/1992; $100,000; 36 mo.

Novel Materials from Conjugated Polymers
Lewis, Nathan; Grubbs, Robert; California Institute of Technology, Pasadena, CA 91125
CHE 9202583 A000; 09/01/1992; $174,000; 12 mo.
Jointly Funded with SOLID-STATE CHEMISTRY $77,000

High Speed and High Contrast Spatial Light Modulator Using Uniaxial Strain
Lu, Yicheng; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
ECS 9216669 A000; 09/01/1992; $37,000; 12 mo.

Minority Carrier Transport in Heavily Doped GaAs
Lundstrom, Mark; Melloch, Michael; Purdue University Research Foundation, West Lafayette, IN 47907
ECS 8901638 A003; 06/01/1989; $6,214; 0 mo.

Engineering Research Equipment: Electronics and Software for Nanoelectromechanical STM
MacDonald, Noel; Cornell University - Endowed, Ithaca, NY 14853
ECS 9212900 A000; 08/15/1992; $86,000; 12 mo.

Presidential Young Investigator Award: Modulation Doped Structure Research
Maracas, George; Arizona State University, Tempe, AZ 85287
ECS 8552904 A006; 08/01/1986; $24,500; 12 mo.

X-Ray Structural Study of the Effect of Substrate Preparation on Liquid Crystal Alignment
Martinez-Miranda, Luz; University of Pennsylvania, Philadelphia, PA 19104
ECS 9201986 A000; 08/15/1992; $180,000; 24 mo.
Jointly Funded with INTERFAC, TRANS, AND THERMODYN PRO and SOLID-STATE CHEMISTRY $90,000

Research on Optimization of a Whiskerless Mixer/Varactor Schottky Barrier Diode Structure for Application at Millimeter and Submillimeter Wavelengths
Mattauch, Robert; Poli, Louis; University of Virginia-Main Campus, Charlottesville, VA 22901
ECS 9016063 A002; 07/01/1990; $8,301; 0 mo.

Silicon Germanium Carbon Alloy Crystal Growth
Mayer, James; Arizona State University, Tempe, AZ 85287
DMR 9222781 A000; 09/01/1992; $50,000; 12 mo.

PYI: Advanced Transport in Semiconductor Structures
Maziar, Christine; University of Texas at Austin, Austin, TX 78712
ECS 9057633 A002; 09/01/1990; $62,492; 12 mo.

Ultra Fast Digital Circuits Using 3-Terminal NDR Devices
Mazumder, Pinaki; Haddad, George; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 9122166 A000; 09/01/1992; $45,736; 12 mo.

Focused Ion Beam Implantation of GaAs Integrated Circuits
Melngailis, John; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 8921728 A002; 04/15/1990; $82,000; 12 mo.

High Speed Heterostructure Devices Based on InP Substrates for Optoelectronic Receiver Applications
Miller, David; Das, Mukunda; Pennsylvania State Univ.-University Park, University Park, PA 16801
ECS 9202642 A000; 08/15/1992; $167,928; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $67,000

Study of MBE Grown Heterojunctions Based on InAs Substrates
Milnes, Arthur; Carnegie-Mellon University, Pittsburgh, PA 15213
ECS 8915034 A002; 07/01/1990; $120,000; 12 mo.

Presidential Young Investigator Award: mm-Wave Devices and Integration Techniques
Mishra, Umesh; University of California-Santa Barbara, Santa Barbara, CA 93106
ECS 9144723 A001; 02/15/1991; $62,500; 12 mo.

Study of Defects and Process Induced Damage in Si1-xGex Materials
Misra, Durgamadhab; The Foundation at NJIT, Newark, NJ 07102
ECS 9207665 A000; 09/01/1992; $126,000; 24 mo.

Noise in a Two Dimensional Electron Gas
Mitin, Vladimir; Wayne State University, Detroit, MI 48202
ECS 9110705 A001; 08/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

Magnetic Microstructure and Information Storage
Muller, Marcel; Indeck, Ronald; Washington University, St. Louis, MO 63130
ECS 9100157 A001; 07/01/1991; $77,000; 12 mo.
ECS 9100157 A002; 07/01/1991; $18,225; 0 mo.

GaAs Buffer Layers by Ion Implantation and Metalorganic Chemical Vapor Deposition
Namavar, Fereydoon; Spire Corporation, Bedford, MA 01730
III 9160122 A000; 01/15/1992; $49,960; 6 mo.

Uniaxial Stress Dependent Studies Related to III-V Semiconductor Devices
Nathan, Marshall; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 8803928 A003; 11/01/1988; $5,000; 0 mo.

Laser Processing of Wide-Gap II-VI Compounds for Improved Conductivity Control
Neumark, Gertrude; Columbia University, New York, NY 10027
ECS 8921159 A002; 05/01/1990; $35,473; 12 mo.

Hetero Epitaxial Growth of Layered Metal Chalcogenides
Ohuchi, Fumio; University of Washington, Seattle, WA 98195
ECS 9209652 A000; 09/01/1992; $100,000; 36 mo.

Coherent Terahertz Spectroscopy: Application to Quasiparticle Dynamics in Cuprate Superconductors
Orenstein, Joseph; University of California-Berkeley, Berkeley, CA 94720
DMR 9204394 A000; 08/15/1992; $75,000; 12 mo.

Non-Conventional, High-Resolution Pattern Generation
Pease, R. Fabian; Stanford University, Stanford, CA 94305
ECS 8920652 A002; 06/15/1990; $140,519; 12 mo.

New Device Concepts and Intraband Processes
Perera, A.G. Unil; University of Pittsburgh, Pittsburgh, PA 15260
ECS 9006078 A001; 01/01/1991; $0; 9 mo.
ECS 9006078 A002; 01/01/1991; $4,795; 8 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,500

New Device Concepts and Intraband Processes
Perera, A.G. Unil; Georgia State University, Atlanta, GA 30303
ECS 9296238 A000; 09/15/1992; $156,000; 10 mo.

Electron Delocalization in GaAs/A1As Quantum Wells-Strained Layer Superlattices
Petrou, Athos; SUNY at Buffalo, Buffalo, NY 14260
ECS 9114416 A001; 09/01/1991; $39,304; 12 mo.

A Collimated X-Ray Lithography Source Using a Kumakhov Lens
Piestrup, Melvin; Adelphi Technology Inc., Palo Alto, CA 94306
III 9160568 A000; 01/15/1992; $49,993; 6 mo.

Conference: Organization of the 1992 Soft-X-Ray Projection Lithography Topical Meeting to be held in Monterey, CA, on April 6-8, 1992
Quinn, Jarus; Optical Society of America, Washington, DC 20036
ECS 9215288 A000; 05/01/1992; $4,000; 12 mo.

High-Energy Implantations in Inp and GaAs
Rao, Mulpuri; Ioannou, Dimitris; George Mason University, Fairfax, VA 22030
ECS 9022438 A001; 03/15/1991; $75,000; 12 mo.

A Fundamental Study of Trapping and Detrapping of Holes and Electrons in Oxide Defects at Room and Reduced Temperatures
Reisman, Arnold; Williams, C; Temple, Dorota; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
DMR 9200862 A000; 08/15/1992; $110,000; 12 mo.

Laser Programmed Conducting Polymers
Sauerbrey, Roland; Callahan, Daniel; William Marsh Rice University, Houston, TX 77252
ECS 9118475 A000; 09/01/1992; $75,000; 12 mo.
Jointly Funded with ARMY-LASER PROG COND POLYMERS $25,000

Extra Large Field Size Sub-Quarter Micron Lithography
Savant, Gajendra; Physical Optics Corporation, Torrance, CA 90501
III 9160329 A000; 01/15/1992; $49,997; 6 mo.

Thin Film Ferroelectrics
Schleich, Donald; Nourbakhsh, Said; Polytechnic University, Brooklyn, NY 11201
DMR 9202207 A000; 09/01/1992; $120,800; 12 mo.
Jointly Funded with SOLID-STATE AND MICROSTRUCTURE RES $20,000

Presidential Young Investigator Award: Physics and Engineering of Superconductor and Semiconducting Devices
Schlesinger, Tuviah; Carnegie-Mellon University, Pittsburgh, PA 15213
ECS 8958405 A004; 09/01/1989; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,750
ECS 8958405 A005; 09/01/1989; $62,500; 12 mo.

Electrochemical Processing and Synthesis of Light Emitting Porous Silicon Structures
Searson, Peter; Sieradzki, Karl; Johns Hopkins University, Baltimore, MD 21218
DMR 9202645 A000; 09/01/1992; $150,000; 12 mo.
Jointly Funded with KINETICS AND CATALYSIS $50,000

Fabrication and Electronic Properties of GaAs/AlGaAs Heterostructures with Atomically Precise Lateral Features
Shayegan, Mansour; Princeton University, Princeton, NJ 08544
ECS 9112740 A001; 09/01/1991; $66,466; 12 mo.

Presidential Young Investigator Award: Microfabricated Drug Delivery Systems
Sheppard, Norman; Johns Hopkins University, Baltimore, MD 21218
ECS 9058419 A003; 08/01/1990; $62,500; 12 mo.

X-Ray Nanolithography
Smith, Henry; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9016437 A001; 01/01/1991; $140,000; 12 mo.

Conference: Support of the 36th International Symposium on Electron, Ion and Photon Beams to be held in Orlando, FL on May 26-29, 1992
Smith, Henry; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9204871 A000; 05/15/1992; $5,000; 6 mo.

NSF Young Investigator
Spector, Joseph S.; Arizona State University, Tempe, AZ 85287
ECS 9258426 A000; 08/15/1992; $25,000; 12 mo.

Fifth International Vacuum Microelectronics Conference,
Vienna, Austria, (July 13-17, 1992) Travel Support for Former Soviet Union Scientists
Spindt, Charles; Gray, Henry; SRI International, Menlo Park, CA 94025
ECS 9221611 A000; 08/01/1992; $10,000; 6 mo.

X-Ray Mask Fabrication Using Diamond Membranes and Metallic Diamondlike Nanocomposite Absorbers
Srivatsa, Arun; Moltech Corporation, Stony Brook, NY 11794-3400
III 9160999 A000; 01/15/1992; $49,960; 6 mo.

PYI: Growth and Applications of Thin Epitaxial Semiconductor Layer for VLSI
Sturm, James; Princeton University, Princeton, NJ 08544
ECS 8657227 A005; 06/01/1987; $37,500; 0 mo.

Auger Analysis and Photoluminescence Equipment for Growth and Optical Properties of Atomic-Layer Scale SiGe Structures by Rapid Thermal Chemical Vapor Deposition
Sturm, James; Princeton University, Princeton, NJ 08544
ECS 9111934 A000; 11/15/1991; $75,760; 12 mo.

Quantum Structures for Light-Emitting Silicon-Germanium Optoelectronic Devices
Sturm, James; Princeton University, Princeton, NJ 08544
ECS 9203109 A000; 09/01/1992; $90,000; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $45,000

Cooperative Research in Integrated Circuit Technology
Sumney, Larry; Semiconductor Research Corporation, Research Triangle Park, NC 27709
ECS 9105584 A002; 08/15/1991; $200,000; 0 mo.
Jointly Funded with ONR $200,000
ECS 9105584 A003; 08/15/1991; $300,000; 0 mo.
Jointly Funded with DEFENSE NUCLEAR AGENCY $100,000
ECS 9105584 A004; 08/15/1991; $200,000; 0 mo.
Jointly Funded with AIR FORCE-SEMICOND RES PROGRAM and AIR FORCE $200,000
ECS 9105584 A005; 08/15/1991; $200,000; 0 mo.
Jointly Funded with ARMY $200,000
ECS 9105584 A006; 08/15/1991; $50,000; 0 mo.
Jointly Funded with COMMERCE-NIST $50,000
ECS 9105584 A007; 08/15/1991; $150,000; 0 mo.
Jointly Funded with NATIONAL SECURITY AGENCY $100,000

Charaterization of Low Frequency Noise in High Tc Superconducting Devices
Surya, Charles; Northeastern University, Boston, MA 02115
ECS 9102396 A000; 06/15/1992; $100,000; 12 mo.

Presidential Young Investigator Award
Tabatabaie, Ned; University of Wisconsin-Madison, Madison, WI 53706
ECS 9058153 A002; 08/01/1990; $62,500; 12 mo.

Simulation of High Speed Pseudomorphic Heterojunction Bipolar Transistors
Tang, Ting-wei; University of Massachusetts-Amherst, Amherst, MA 01003
ECS 9003518 A001; 01/15/1990; $80,000; 12 mo.

Gordon Research Conference on the Chemistry and Physics of Microstructure Fabrication, July 27-31, 1992, Meriden, NH
Tennant, Donald; Gordon Research Conferences, Kingston, RI 02881
ECS 9209718 A000; 06/01/1992; $4,300; 1 mo.

Sensor-Based Control of Semiconductor Manufacturing Equipment
Terry, Fred; Elta, Michael; Khargonekar, Pramod; Grizzle, Jessy; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
EEC 9212316 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Development of an Artificial Electrochemical Synapse
Triffet, Terry; University of Arizona, Tucson, AZ 85721
ECS 9209707 A000; 08/15/1992; $49,339; 12 mo.

Thin Flim Squids of High TC Materials
Vittoria, Carmine; Northeastern University, Boston, MA 02115
ECS 9011618 A001; 03/01/1991; $114,425; 12 mo.
Jointly Funded with LIGHTWAVE TECHNOLOGY $38,000

Non-Spiking Ohmic Contact Metallization for p-InP
Wang, Long-Ching; Texas A&M University Research Foundation, College Station, TX 77843
ECS 9202875 A000; 09/01/1992; $95,000; 12 mo.
Jointly Funded with ELECTRONIC MATERIALS $47,500

Molybdenum Coating Process Using Liquid Metallo-Organic Precursors
Weeks, Joseph; Technical Research Associates Inc., Salt Lake City, UT 84108
III 9160495 A000; 01/15/1992; $50,000; 6 mo.

Optical Nuclear Magnetic Resonance of III-V Quantum Wells
Weitekamp, Daniel; Grunthaner, Frank; California Institute of Technology, Pasadena, CA 91125
CHE 9202524 A000; 08/15/1992; $162,000; 12 mo.
Jointly Funded with SOLID-STATE CHEMISTRY $54,000

Physical Electronics of Multi-Dielectric Microstructures
White, Marvin; Lehigh University, Bethlehem, PA 18015
ECS 9023607 A001; 04/15/1991; $95,129; 12 mo.

Nondestructive Characterization and Optimization of Strained Tunneling Structures
Wie, Chu; SUNY at Buffalo, Buffalo, NY 14260
ECS 8913229 A002; 02/15/1990; $31,112; 12 mo.

Functional Quantum Waveguide and Single Electron Structures
Wybourne, Martin; University of Oregon-Eugene, Eugene, OR 97403
ECS 9216768 A000; 09/01/1992; $36,000; 12 mo.

International Conference on Amorphous and Crystalline Silicon Carbide: October 1991
Yang, Cary; Rahman, M. Mahmudur; Santa Clara University, Santa Clara, CA 95053
ECS 9123298 A000; 10/01/1991; $7,500; 12 mo.

Hot Electron Mixers Using the 2DEG Medium in a Magnetic Field
Yngvesson, Karl; Lau, Kei; University of Massachusetts-Amherst, Amherst, MA 01003
ECS 9208752 A000; 09/01/1992; $49,687; 12 mo.

Ion Mixing as a Processing Technique for Monolithic and Array Integration of Photonic Devices
Yu, Kit-Lai; Lau, Silvanus; Asbeck, P.; University of California-San Diego, San Diego, CA 92093
ECS 9111837 A001; 09/01/1991; $90,000; 12 mo.

Generation and Detection of Intense Terahertz Microwave Radiation Pulses from Semiconductor Photovoltaic Devices
Zhang, Xi-Cheng; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
ECS 9211566 A000; 08/15/1992; $99,984; 36 mo.

A Novel Optoelectronic Thyristor for Picosecond High Power Switching Applications (REU Supplement)
Zhao, Jian; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
ECS 9009370 A001; 07/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500

An InP/InGaAsp Based Thyristor for Optical Amplification and Power Switching Applications
Zhao, Jian; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
ECS 9114689 A001; 08/15/1991; $39,983; 12 mo.

Special Programs

Neural Networks for Adaptive Control
Barto, Andrew; Hollot, Christopher; Ydstie, B. Erik; University of Massachusetts-Amherst, Amherst, MA 01003
ECS 8912623 A003; 12/01/1989; $213,285; 12 mo.

Reinforcement Learning Algorithms Based on Dynamic Programming
Barto, Andrew; Ydstie, B. Erik; University of Massachusetts-Amherst, Amherst, MA 01003
ECS 9214866 A000; 09/15/1992; $51,155; 12 mo.

Quantum Wire Nanostructures in Multiple Quantum Well Optical Waveguides: Enhanced Nonlinear Optical Interactions
Boyd, Joseph; Jackson, Howard; University of Cincinnati-Main Campus, Cincinnati, OH 45221
ECS 9113244 A001; 08/15/1991; $130,000; 12 mo.
Jointly Funded with AIR FORCE-III-V SEMICONDUCTOR $65,000

SGER: High Space-Time Bandwidth Volume Holographic Systems
Brady, David Jones; Papen, George C.; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9216273 A000; 10/01/1992; $50,000; 12 mo.
Jointly Funded with AIR FORCE $25,000

Neural Structures for Network Problems via Geometric Rule Adaptation
Burke, Laura; Lehigh University, Bethlehem, PA 18015
ECS 9110846 A001; 07/15/1991; $43,119; 12 mo.

Basic Physics and Measurments of Pure Electron Plasmas in Crossed-Field Amplifiers and Micro-Field Emitter Arrays
Chan, Chung; Browning, Jim; Northeastern University, Boston, MA 02115
ECS 9120085 A000; 09/01/1991; $101,644; 12 mo.
Jointly Funded with NAVY $75,000

Infrared Optical Engineering Research Equipment
Chin, K. Ken; Hensel, J; The Foundation at NJIT, Newark, NJ 07102
ECS 9213108 A000; 10/15/1992; $50,000; 12 mo.

Incipient Fault Detection in Rotating Machines Using a Neural Network
Chow, Mo-yuen; White, Mark; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
ECS 8922727 A003; 07/01/1990; $9,910; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,432
ECS 8922727 A004; 07/01/1990; $50,000; 12 mo.
Jointly Funded with POWER SYSTEMS $35,905

Administrative and Logistical Support for a Series of Expert Workshops on Emerging Engineering Technologies
Coleman, Faye; Westover Consultants Inc., Washington, DC 20001
ECS 8720164 A012; 09/01/1987; $53,883; 0 mo.

An Evolutionary Credit Apportionment Algorithm for Neuromolecular Computer Design
Conrad, Michael; Wayne State University, Detroit, MI 48202
ECS 9109860 A001; 09/01/1991; $104,213; 12 mo.

Control of Nonstationary Systems Using Information Preserving Neural Networks
Cooper, Douglas; Palmieri, Francesco; University of Connecticut, Storrs, CT 06268
CTS 9008596 A002; 10/15/1990; $63,876; 12 mo.
Jointly Funded with NEUROENGINEERING $31,938

National Nanofabrication Facility at Cornell University
Craighead, Harold G.; MacDonald, Noel; Buhrman, Robert; Galvin, Gregory; Cornell University - Endowed, Ithaca, NY 14853
ECS 8619049 A006; 10/01/1987; $2,000,000; 12 mo.
ECS 8619049 A007; 10/01/1987; $9,000; 0 mo.

Experimental Studies of Photorefractive Polymers
Ducharme, Stephen; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
ECS 9209941 A000; 10/01/1992; $11,450; 36 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $10,000

Adaptive Critic Networks for Real-Time Fault Diagnosis in Electric Power Production
Fernandez, Benito; University of Texas at Austin, Austin, TX 78712
ECS 9113623 A001; 08/15/1991; $66,097; 12 mo.

2nd BCN Workshop on the Computational Hierarchies of the Brain
Finn, Edward; Prueitt, Paul; Georgetown University, Washington, DC 20057
ECS 9121018 A000; 05/01/1992; $7,021; 6 mo.

Presidential Young Investigator Award
Hassoun, Mohamad; Wayne State University, Detroit, MI 48202
ECS 9057896 A003; 06/01/1990; $62,500; 12 mo.

Micro Electro Mechanical Systems for NSF/NASA/DOD Applications Workshop
Jacobsen, Stephen; Wood, J.; University of Utah, Salt Lake City, UT 84112
ECS 9106811 A000; 09/01/1992; $70,000; 12 mo.
Jointly Funded with ROBOTICS AND MACHINE INTELLIGE $5,000

Kam, Moshe; Drexel University, Philadelphia, PA 19104
ECS 9057587 A002; 10/01/1990; $25,000; 12 mo.

SGER: Advanced Solid-State Laser with <20 Femtosecond Pulse Duration (REU SUPPLEMENT)
Kapteyn, Henry; Murnane, Margaret; Washington State University, Pullman, WA 99164-3140
ECS 9204033 A000; 05/15/1992; $49,372; 12 mo.
Jointly Funded with AIR FORCE $24,636

Recurrent Neural Networks and Micro-Genetic Algorithms for Estimation and Optimization: Application to Bioprocesses
Karim, M. Nazmul; Colorado State University, Fort Collins, CO 80523
BCS 9118955 A000; 03/15/1992; $96,968; 12 mo.
Jointly Funded with NEUROENGINEERING and PROCESS AND REACTION ENGINEERING $50,000

Polymeric Ultrathin Film Multilayered Modulators
Kowel, Stephen; University of Alabama in Huntsville, Huntsville, AL 35899
ECS 9196012 A002; 09/15/1990; $100,000; 12 mo.
Jointly Funded with DARPA $50,000

Stability Analysis for Neural Control
Kraft, L. Gordon; Miller, W. Thomas; Glanz, Filson; University of New Hampshire-Durham, Durham, NH 03824
IRI 9112531 A000; 02/15/1992; $159,594; 12 mo.
Jointly Funded with NEUROENGINEERING $79,797

Presidential Young Investigator Award
Kuh, Anthony; University of Hawaii-Manoa, Honolulu, HI 96822
ECS 8857711 A004; 09/15/1988; $39,142; 12 mo.

Qualitative Analysis of Complex Dynamical Systems
Michel, Anthony; University of Notre Dame, Notre Dame, IN 46556
ECS 9107728 A001; 08/15/1991; $37,200; 12 mo.
Jointly Funded with SYSTEMS THEORY $6,000

Adaptive Identification and Control of Dynamical Systems Using Neural Networks
Narendra, Kumpati; Yale University, New Haven, CT 06520
ECS 9203928 A000; 06/01/1992; $125,456; 12 mo.

Workshop on Reconfigurable Free-Space Optical Interconnects; Boulder, Colorado
Neff, John; Stirk, Charles; University of Colorado at Boulder, Boulder, CO 80309
ECS 9206788 A000; 04/15/1992; $11,500; 7 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS and AIR FORCE - FREE SPACE OPTICAL $9,000

Neural Network Dynamic Pattern Recognition Using Optimal Control
Olurotimi, Oluseyi; George Mason University, Fairfax, VA 22030
ECS 9209456 A000; 08/01/1992; $89,991; 36 mo.

A New Connectionist Model for Time-Varying Signal Classification
Principe, Jose; University of Florida, Gainesville, FL 32611
ECS 9208789 A000; 09/01/1992; $73,525; 12 mo.

Low-Storage Second-Order Learning Algorithms for Neural Network Modeling
Schneider, Michael; Johns Hopkins University, Baltimore, MD 21218
ECS 9111548 A001; 07/15/1991; $62,804; 12 mo.

RIA: Genetic Algorithms in Connectionist Networks for Reinforcement Learning Control
Smith, Robert; The University of Alabama, Tuscaloosa, AL 35487-2856
ECS 9212066 A000; 08/15/1992; $35,123; 12 mo.

Workshop on the Modeling of Uncertainty in Control Systems, April/May 1992, University of California, Santa Barbara
Smith, SRoy; Dahleh, Mohammed; University of California-Santa Barbara, Santa Barbara, CA 93106
ECS 9203908 A000; 04/15/1992; $34,000; 6 mo.
Jointly Funded with AIR FORCE $17,000

Cooperative Research in Integrated Circuit Technology
Sumney, Larry; Semiconductor Research Corporation, Research Triangle Park, NC 27709
ECS 9105584 A003; 08/15/1991; $300,000; 0 mo.
Jointly Funded with DEFENSE NUCLEAR AGENCY $100,000
ECS 9105584 A004; 08/15/1991; $200,000; 0 mo.
Jointly Funded with AIR FORCE-SEMICOND RES PROGRAM and AIR FORCE $200,000
ECS 9105584 A005; 08/15/1991; $200,000; 0 mo.
Jointly Funded with ARMY $200,000
ECS 9105584 A006; 08/15/1991; $50,000; 0 mo.
Jointly Funded with COMMERCE-NIST $50,000
ECS 9105584 A007; 08/15/1991; $150,000; 0 mo.
Jointly Funded with NATIONAL SECURITY AGENCY $100,000

Erbium-Doped Fiber Amplifiers
Sunak, Harish; University of Rhode Island, Kingston, RI 02881
ECS 9111419 A001; 08/15/1991; $60,000; 12 mo.
Jointly Funded with ARMY-ERBIUM DOPED AMPLIFIERS $10,000

Laser Programmed Conducting Polymers
Sauerbrey, Roland; Callahan, Daniel; William Marsh Rice University, Houston, TX 77252
ECS 9118475 A000; 09/01/1992; $75,000; 12 mo.
Jointly Funded with ARMY-LASER PROG COND POLYMERS $25,000

NSF/DARPA Agreement for Use of DARPA VLSI Implementation
Toole, John; Department of Defense Defense Advanced Research Projects Agency, Arlington, VA 22209
MIP 9015601 A002; 10/01/1990; $903,635; 12 mo.
Jointly Funded with EXPERIMENTAL SYSTEMS PROGRAM and CIRCUITS AND SIGNAL PROCESSING $87,005

Interior-Point Methods in Artificial Neural Networks
Trafalis, Theodore; University of Oklahoma-Norman Campus, Norman, OK 73019
ECS 9212003 A000; 08/01/1992; $29,451; 12 mo.

Solution of Inverse Problems in Electromagnetic and Optical Propagation Using Artificial Neural Networks
Tsang, Leung; Ishimaru, Akira; Hwang, Jenq-Neng; University of Washington, Seattle, WA 98195
ECS 9014243 A002; 03/01/1991; $76,000; 12 mo.
Jointly Funded with NEUROENGINEERING $25,000

Neural Networks for Nonlinear Servomechanism
Tseng, H. Chris; Santa Clara University, Santa Clara, CA 95053
ECS 9110886 A001; 09/01/1991; $30,501; 12 mo.

Process Fault Diagnosis and Control Using Neural Networks
Venkatasubramanian, Venkat; Purdue University Research Foundation, West Lafayette, IN 47907
ECS 9013349 A002; 09/01/1990; $79,759; 12 mo.
Jointly Funded with PROCESS AND REACTION ENGINEERING $39,879

Neural Networks for Adpative Nonliner Control
Widrow, Bernard; Stanford University, Stanford, CA 94305
IRI 9113491 A000; 02/01/1992; $116,641; 12 mo.
Jointly Funded with NEUROENGINEERING $58,320

Visible Wavelength Optoelectronic Logic Devices
Wilmsen, Carl; Colorado State University, Fort Collins, CO 80523
ECS 9216170 A000; 08/15/1992; $50,000; 12 mo.
Jointly Funded with AIR FORCE $25,000

Nonlinear Dynamics of Phase-Locked Semiconductor Laser Arrays
Winful, Herbert; DeFreez, Richard; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 8906214 A002; 03/15/1990; $123,614; 12 mo.
Jointly Funded with AIR FORCE-NONLINEAR DYNAMICS $75,000

Neural Networks and Fuzzy Sets with Applications to Control
Yager, Ronald; Iona College, New Rochelle, NY 10801
ECS 9019854 A001; 02/01/1991; $62,367; 12 mo.

ENGINEERING EDUCATION AND CENTERS DIVISION

Engineering Education Program

Design and Control of a Walking Robot
Dayawansa, Wijesuriya; Tits, Andre; Azarm, Shapour; Farvardin, Nariman; Tsai, Lung-Wen; University of Maryland-College Park, College Park, MD 20742
EEC 9212126 A000; 09/15/1992; $365,000; 36 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $55,000

Board of Engineering Education
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
EEC 9109302 A002; 06/15/1991; $50,000; 0 mo.
Jointly Funded with NASA-BD ON ENG EDUC OF NATL RE $50,000
EEC 9109302 A003; 06/15/1991; $150,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $40,000

Graduate Engineering Education for Women, Minorities and/or Persons with Disabilities
Emery, Ashley; Berg, Cheryl; Glass, Marvin; University of Washington, Seattle, WA 98195
EEC 9116866 A002; 09/15/1991; $108,000; 0 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $34,956

A Restructured Engineering Science Core with a Design Component
Erdman, Carl; Glover, Charles; Texas A&M University Research Foundation, College Station, TX 77843
DUE 8854512 A004; 07/15/1988; $147,500; 12 mo.

An Enhanced Educational Experience for Engineering Students
Fromm, Eli; Quinn, Robert; Drexel University, Philadelphia, PA 19104
DUE 8854555 A005; 09/01/1988; $149,150; 12 mo.

Gateway Engineering Education Coalition
Fromm, Eli; Drexel University, Philadelphia, PA 19104
EEC 9109794 A000; 03/15/1992; $3,000,000; 60 mo.

An Integrated Undergraduate Program on Semiconductor Devices for Power Flow Control
Gray, Jeffrey; Heydt, Gerald; Neudeck, Gerold; Ong, Chee-Mun; Purdue University Research Foundation, West Lafayette, IN 47907
EEC 9212409 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $15,000

Graduate Engineering Education at Michigan State University
Grulke, Eric; Michigan State University, East Lansing, MI 48824
EEC 9018669 A002; 09/15/1990; $108,000; 0 mo.

DEDS: A New Paradigm for Performance Analysis, Computation and Optimization
Ho, Yu-Chi; Harvard University, Cambridge, MA 02138
EEC 9212122 A000; 09/15/1992; $365,000; 36 mo.
Jointly Funded with SYSTEMS THEORY $62,500

Photonic Research for Opto-Electronics and Optical Communication Curriculum Development
Ho, Ping-Pei; Dorsinville, Roger; Ahmed, Samir; Shum, Kai; Alfano, Robert; CUNY-City College, New York, NY 10031
EEC 9212310 A000; 09/15/1992; $390,000; 36 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $190,000

National Engineering Education Coalition
Ingraffea, Anthony; Aceto, Jeanne; Agogino, Alice; Eide, Arvid; Henderson, Thomas; Cornell University - Endowed, Ithaca, NY 14853
EEC 9053807 A003; 09/01/1990; $3,069,509; 12 mo.
Jointly Funded with INTRODUCT CURRICULUM PROJECTS $1,023,170

Workshop to Assess Matters of Common Concern in Engineering Education in the USSR and USA
Leake, Woodrow; American Society For Engineering Education, Washington, DC 20036
EEC 9115556 A002; 07/01/1991; $10,000; 0 mo.
Jointly Funded with FSU SUPPLEMENTS $8,000

The Integration of Sensors into the Electrical Engineering Curriculum
Lec, Ryszard; Vetelino, John; University of Maine, Orono, ME 04469-0114
EEC 9212125 A000; 09/15/1992; $390,000; 36 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $100,000

Research and Curriculum Development for Power Plant Intelligent Distributed Control
Lee, Kwang; Edwards, Robert; Mayer, Jeffrey; Pennsylvania State Univ.-University Park, University Park, PA 16801
EEC 9212132 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $46,500

Technology and Curriculum Development for Packaging Optoelectronic Parallel Computing Systems Based on Free-Space Optical Interconnects
Lee, Sing; Ozguz, V.; University of California-San Diego, San Diego, CA 92093
EEC 9212156 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $31,000

Southeastern University and College Coalition for Engineering Education (SUCCEED)
Littlejohn, Michael; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
EEC 9109853 A000; 03/15/1992; $3,000,000; 60 mo.

Educational and Research Infrastructure Development in Microelectromechanical Systems
Robbins, William; Erdman, Arthur; Polla, Dennis; Francis, Lorraine; University of Minnesota-Twin Cities, Minneapolis, MN 55415
EEC 9212159 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $77,000

Sensor-Based Control of Semiconductor Manufacturing Equipment
Terry, Fred; Elta, Michael; Khargonekar, Pramod; Grizzle, Jessy; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
EEC 9212316 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $75,000

A Proposal for the Renewal of Engineering Education and Its Infrastructure
Walker, M. Lucius; Howard University, Washington, DC 20059
EEC 9053812 A003; 09/01/1990; $998,831; 12 mo.
Jointly Funded with INTRODUCT CURRICULUM PROJECTS $998,831

Chemical Sensors for Advanced Process Analysis
Yee, Sinclair; Carey, W.; University of Washington, Seattle, WA 98195
EEC 9212314 A000; 09/15/1992; $390,000; 36 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $95,000

Engineering Research Centers

Engineering Research Center for Telecommunications
Acampora, Anthony; Columbia University, New York, NY 10027
EEC 8811111 A011; 02/15/1988; $3,310,000; 12 mo.
Jointly Funded with ARMY $10,000
EEC 8811111 A012; 02/15/1988; $30,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000
EEC 8811111 A013; 02/15/1988; $11,865; 0 mo.
Jointly Funded with QUANT ELECTRON, PLASMA, AND ELECTRO $11,865
EEC 8811111 A014; 02/15/1988; $10,000; 12 mo.

Engineering Research Center for Net Shape Manufacturing
Altan, Taylan; Ohio State University Research Foundation, Columbus, OH 43210
EEC 8943165 A007; 05/01/1989; $530,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 8943165 A008; 05/01/1989; $1,800,000; 9 mo.

Workshop on Riser Mechanics
Bernitsas, Michael; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
ECS 9221744 A000; 08/15/1992; $50,456; 6 mo.

Engineering Research Center for Compound Semiconductor Microelectronics
Bishop, Stephen; University of Illinois at Urbana-Champaign, Urbana, IL 61801
EEC 8943166 A005; 05/01/1989; $1,100,000; 0 mo.
EEC 8943166 A006; 05/01/1989; $988,216; 3 mo.
EEC 8943166 A007; 05/01/1989; $952,733; 9 mo.

Expanding an Existing Precollege Science and Technology Career Program
Bortz, Alfred; Carnegie-Mellon University, Pittsburgh, PA 15213
ESI 9155116 A000; 06/01/1992; $148,014; 17 mo.

Workshop on Connections for Building Structures in the 21st Century
Bower, John; Michalerya, William; Lehigh University, Bethlehem, PA 18015
MSS 9203177 A000; 01/01/1992; $9,500; 6 mo.

Engineering Research Center for Optoelectronic Computing Systems
Cathey, Wade; Johnson, Kristina; Jordan, Harry; Pankove, Jacques; Scharf, Louis; University of Colorado at Boulder, Boulder, CO 80309
EEC 9015128 A004; 04/15/1990; $2,600,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 9015128 A005; 04/15/1990; $50,000; 12 mo.
Jointly Funded with AIR FORCE $50,000

Engineering Research Center for Interfacial Engineering
Evans, D. Fennell; University of Minnesota-Twin Cities, Minneapolis, MN 55415
EEC 8721551 A011; 10/01/1988; $1,350,000; 9 mo.
EEC 8721551 A012; 10/01/1988; $45,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000
EEC 8721551 A013; 10/01/1988; $16,240; 12 mo.
Jointly Funded with TEACHER ENHANCEMENT PROGRAM $5,000
EEC 8721551 A014; 10/01/1988; $378,472; 12 mo.

Engineering Research Center for Advanced Technology for Large Structural Systems
Fisher, John; Pense, Alan; Lehigh University, Bethlehem, PA 18015
EEC 8943455 A005; 05/01/1989; $683,099; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 8943455 A006; 05/01/1989; $2,128,180; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $53,180

Engineering Research Center for the Carnegie Mellon Data Storage Systems Center
Kryder, Mark; Carnegie-Mellon University, Pittsburgh, PA 15213
EEC 8907068 A005; 04/15/1990; $2,470,565; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Engineering Research Center for Systems Research
Marcus, Steven; Baras, John; University of Maryland-College Park, College Park, MD 20742
EEC 8803012 A011; 02/01/1988; $750,000; 3 mo.
EEC 8803012 A012; 02/01/1988; $68,617; 12 mo.
Jointly Funded with YOUNG SCHOLARS PROGRAM $24,308
EEC 8803012 A013; 02/01/1988; $2,360,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and TEACHER ENHANCEMENT PROGRAM $100,000

Engineering Research Center for Advanced Electronic Materials Processing
Masnari, Nino; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
EEC 8721505 A005; 09/15/1988; $1,500,000; 9 mo.
EEC 8721505 A006; 09/15/1988; $174,400; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 8721505 A007; 09/15/1988; $2,800,000; 12 mo.

Workshop on Reconfigurable Free-Space Optical Interconnects; Boulder, Colorado
Neff, John; Stirk, Charles; University of Colorado at Boulder, Boulder, CO 80309
ECS 9206788 A000; 04/15/1992; $11,500; 7 mo.
Jointly Funded with AIR FORCE - FREE SPACE OPTICAL $6,500

Engineering Research Center for Emerging Cardiovascular Technologies
Pilkington, Theo; Duke University, Durham, NC 27708
EEC 8622201 A010; 09/15/1987; $2,340,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Engineering Research Center for Engineering Design
Prinz, Friedrich; Carnegie-Mellon University, Pittsburgh, PA 15213
EEC 8943164 A004; 05/01/1989; $711,500; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 8943164 A005; 05/01/1989; $2,228,500; 9 mo.

Engineering Research Center for Interfacial Microbial Process Engineering
Sears, John; Montana State University, Bozeman, MT 59717
EEC 8907039 A004; 04/15/1990; $764,841; 6 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Engineering Research Center for Interfacial Microbial Process Engineering
Sears, John; Montana State University, Bozeman, MT 59717
EEC 8907039 A004; 04/15/1990; $764,841; 6 mo.

Engineering Research Center for Offshore Technology
Seymour, Richard; Lou, Jack; Stokoe, Kenneth; Texas A&M University Research Foundation, College Station, TX 77843
EEC 8721512 A009; 10/01/1988; $1,070,000; 9 mo.
EEC 8721512 A010; 10/01/1988; $95,724; 12 mo.
Jointly Funded with YOUNG SCHOLARS PROGRAM $20,362
EEC 8721512 A011; 10/01/1988; $378,472; 12 mo.

Engineering Research Center for Plasma-Aided Manufacturing
Shohet, J.; Box, George; Cooper, Stuart; Hershkowitz, Noah; Kulcinski, Gerald; University of Wisconsin-Madison, Madison, WI 53706
EEC 8721545 A007; 10/01/1988; $1,350,000; 9 mo.
EEC 8721545 A008; 10/01/1988; $35,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000
EEC 8721545 A009; 10/01/1988; $2,820,000; 12 mo.

Engineering Research Center for Advanced Combusion
Smoot, L. Douglas; Brigham Young University, Provot, UT 84602
EEC 8901595 A003; 05/01/1989; $725,925; 3 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 8901595 A004; 05/01/1989; $1,611,575; 9 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $12,500

Engineering Research Center for Intelligent Manufacturing Systems
Solberg, James; Anderson, David; Barash, Moshe; Kashyap, Rangasami; Mitchell, Owen; Purdue University, West Lafayette, IN 47907
EEC 8803017 A012; 02/01/1988; $3,070,000; 12 mo.
EEC 8803017 A013; 02/01/1988; $303,420; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and DARPA-SSTO $273,420
EEC 8803017 A014; 02/01/1988; $175,000; 12 mo.
Jointly Funded with ARMY $175,000

Engineering Research Center for Computational Field Simulation
Thompson, Joe; Mississippi State University, Mississippi State, MS 39762
EEC 8907070 A006; 04/15/1990; $2,195,433; 12 mo.
$5,297
EEC 8907070 A007; 04/15/1990; $112,291; 12 mo.
Jointly Funded with AIR FORCE-GRID GENERATION RES and ARMY-ENGINEERING RESEARCH CENT $112,291
EEC 8907070 A008; 08/05/1992; $70,000; 12 mo.
Jointly Funded with NASA and WATERWAY EXPERIMENT STATION $70,000

Engineering Research Center for Biotechnology Process
Wang, Daniel; Massachusetts Institute of Technology, Cambridge, MA 02139
EEC 8803014 A010; 05/01/1988; $2,500,000; 12 mo.
EEC 8803014 A011; 05/01/1988; $45,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 8803014 A012; 05/01/1988; $75,000; 12 mo.

Human Resources Development

Cone Penetration Testing in Cemented Sands
Acar, Yalcin; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
MSS 9020368 A002; 03/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Undergraduate Research at the Fluid Dynamics Research Center
Acharya, Mukund; Illinois Institute of Technology, Chicago, IL 60616
EEC 9200215 A000; 04/15/1992; $43,350; 12 mo.

Research Initiation Award: An Object-Oriented Model for Engineering Applications Using a Geographic Database
Adams, Teresa; University of Wisconsin-Madison, Madison, WI 53706
MSS 9010587 A001; 07/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Automating Mechanical Engineering Design Education Creativity Award
Advani, Suresh; University of Delaware, Newark, DE 19716
EEC 9017555 A003; 08/01/1990; $35,000; 12 mo.

Award for Creativity in Engineering
Ahmadi, Goodarz; Clarkson University, Potsdam, NY 13676
EEC 9017559 A002; 08/01/1990; $35,000; 12 mo.

Engineering Research Center for Net Shape Manufacturing
Altan, Taylan; Ohio State University Research Foundation, Columbus, OH 43210
EEC 8943165 A007; 05/01/1989; $530,000; 12 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS $25,000

Manufacturing Strategies for Multi-Product, Multi-Stage Production/Inventory Systems
Altiok, Tayfur; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
DDM 9014868 A001; 06/01/1991; $12,500; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $3,125

Ultrafast Dark Spatial Solitary Wave Propagation Phenomena: Physics and Device Applications
Andersen, David; University of Iowa, Iowa City, IA 52242
ECS 9105660 A000; 01/01/1992; $58,661; 12 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $1,250

Project WENDI: Graduate Engineering Education
Anderson, Kimberly; Hamrin, Charles; Kentucky Research Foundation, Lexington, KY 40506
EEC 9018702 A001; 09/01/1990; $40,500; 12 mo.

Presidential Young Investigator Award-Physiological Aspects of Microbial Sulfur Transformations of Relevance to Concrete Corrosion
Arnold, Robert; University of Arizona, Tucson, AZ 85721
BCS 8658002 A008; 08/01/1987; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

An Integrated System for Spline-Based Cam Design and Manufacturing
Ault, Holly; Worcester Polytechnic Institute, Worcester, MA 01609
DDM 9109378 A001; 07/15/1991; $4,063; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,016

Minority Research: Intervention Strategies to Prevent Cumulative Trauma Disorders
Badiru, Adedeji; McCauley-Bell, Pamela; University of Oklahoma-Norman Campus, Norman, OK 73019
EEC 9201328 A000; 06/15/1992; $24,860; 24 mo.

A Decomposition Strategy for Optimization of Reinforced Concrete Systems
Balling, Richard; Wilson, Arnold; Brigham Young University, Provo, UT 84602
MSS 8914238 A002; 11/15/1989; $4,992; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,248

Grants for Research and Education in Science and Engineering
Barlow, Jewel; University of Maryland-College Park, College Park, MD 20742
EEC 9209069 A000; 02/15/1992; $30,000; 12 mo.

Award for Creativity in Engineering for Melinda Salisbury
Barnes, Randal; University of Minnesota-Twin Cities, Minneapolis, MN 55415
EEC 9019887 A002; 08/01/1990; $35,000; 12 mo.

Mathematical Sciences: REU: In Numerical Linear Algebra and Optimization
Barnes, Earl; Al-Khayyal, Faiz; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
DMS 9200615 A000; 06/01/1992; $39,825; 12 mo.

Environmental Water Chemistry Instrumentation for Undergraduate Teaching and Research
Bassett, R.; University of Arizona, Tucson, AZ 85721
EEC 8952168 A001; 03/01/1990; $5,000; 0 mo.

Rescheduling Disrupted Production Systems
Bean, James; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9018515 A001; 04/15/1991; $12,500; 0 mo.

U.S.-F.S.U. Workshop on Inverse Problems in Heat Transfer; June, 1992; East Lansing, Michigan
Beck, James; Michigan State University, East Lansing, MI 48824
INT 9113514 A000; 05/01/1992; $18,000; 3 mo.
Jointly Funded with THERMAL TRANSPORT AND PROCESSING $6,000

Collision Cross Sections for Electron-Impact Dominated Processes in Etching Plasmas
Becker, Kurt; CUNY-City College, New York, NY 10031
CTS 9017211 A001; 06/01/1991; $4,688; 0 mo.
Jointly Funded with INTERFAC TRANS AND THERMODYN PRO $391

ANEX/RIED: Analysis, Experiment and Engineering Drawings in a Portable Structural Model Laboratory
Behr, Richard; University of Missouri-Rolla, Rolla, MO 65401
DUE 9150460 A001; 07/15/1991; $10,000; 0 mo.

Presidential Young Investigators Award
Benson, Craig; University of Wisconsin-Madison, Madison, WI 53706
MSS 9157116 A002; 07/01/1991; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Award for Creativity in Engineering
Bergman, Theodore; University of Texas at Austin, Austin, TX 78712
EEC 9017560 A002; 08/01/1990; $35,000; 12 mo.

Undergraduate Research Experiences in Agricultural and Food Engineering
Bern, Carl; Gilley, James; Iowa State University, Ames, IA 50011
EEC 9200161 A000; 05/15/1992; $89,856; 24 mo.

REU Site: Synthesis and Processing of Advanced Engineering Materials
Bifano, Thomas; Kerr, Thomas; Boston University, Boston, MA 02215
EEC 9200491 A000; 05/01/1992; $50,000; 12 mo.

Graduate Engineering Education Program for Women and Minorities at Drexel University
Bilgutay, Nihat; Drexel University, Philadelphia, PA 19104
EEC 9116782 A001; 09/15/1991; $67,500; 12 mo.

Engineering Research Center for Compound Semiconductor Microelectronics
Bishop, Stephen; University of Illinois at Urbana-Champaign, Urbana, IL 61801
EEC 8943166 A006; 05/01/1989; $988,216; 3 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS $21,189

Research Experiences for Undergraduates: Frontiers in Chemical Engineering Research 2000
Blackmond, Donna; Holder, Gerald; University of Pittsburgh, Pittsburgh, PA 15260
EEC 9200114 A000; 05/15/1992; $40,669; 12 mo.

REU Supplement: Characterization of Polymer Interphases Using Surface-Enhanced Raman Scattering
Boerio, F. James; University of Cincinnati-Main Campus, Cincinnati, OH 45221
CTS 8823071 A004; 12/01/1989; $9,860; 0 mo.

Decision-Making, Modeling and Forecasting Hydrometeorologic Extremes Under Climate Change
Bogardi, Istvan; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
BCS 9016556 A001; 02/15/1991; $10,000; 0 mo.

Expanding an Existing Precollege Science and Technology Career Program
Bortz, Alfred; Carnegie-Mellon University, Pittsburgh, PA 15213
ESI 9155116 A000; 06/01/1992; $148,014; 17 mo.

Presidential Young Investigator Award: A Graphical Characterization of Diverse Iterative Design Optimization Processes
Burns, Scott; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 8957410 A005; 09/01/1989; $16,800; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,400

An Undergraduate Research Experience in Microelectronics and Photonics
Burns, Stanley; Dalal, Vikram; Tuttle, Gary; Weber, Robert; Iowa State University, Ames, IA 50011
EEC 9200382 A000; 05/15/1992; $49,368; 12 mo.

Excellence Through Research
Busch-Vishniac, Ilene; Nichols, Steven; University of Texas at Austin, Austin, TX 78712
EEC 9200319 A000; 04/15/1992; $48,060; 12 mo.

Research Experiences for Mechanical Engineering Undergraduates (REMEU)
Buzyna, George; Buzyna, George; Krothapalli, Anjaneyul; Florida Agricultural and Mechanical University, Tallahassee, FL 32307
EEC 9200154 A000; 04/15/1992; $50,000; 12 mo.

Structure of the Hagia Sophia from the Age of Justinian to the Present
Cakmak, Ahmet; Mark, Robert; Princeton University, Princeton, NJ 08544
MSS 9001601 A002; 06/01/1990; $4,500; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,125

Computer-Assisted Formulation of Computer Architecture Designs
Carothers, Jo Dale; University of Arizona, Tucson, AZ 85721
DDM 9111479 A000; 11/15/1991; $18,000; 18 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $4,500

Research Experiences for Undergraduates
Cassara, Frank; Shaw, Leonard; Polytechnic University, Brooklyn, NY 11201
EEC 9200139 A000; 05/01/1992; $50,687; 12 mo.

The Effect of Pressure on Low and Intermediate Temperature Hydrocarbon Oxidation
Cernansky, Nicholas; Drexel University, Philadelphia, PA 19104
CTS 8914756 A001; 02/01/1990; $10,000; 0 mo.

Analytical and Experimental Investigations of Elastic Plastic Fracture in Solids
Chao, Yuh; Sutton, Michael; University of South Carolina at Columbia, Columbia, SC 29208
MSS 9003973 A003; 07/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Solidification of Binary Mixtures in a Porous Media in the Presence of Double Diffusive Convection
Chellaiah, S; Florida International University, Miami, FL 33199
CTS 9246311 A000; 03/15/1992; $15,000; 0 mo.

RIA: A New Approach to Minimum-Time Control of Multiple Interconnected Mechanical Systems (REU Supplement)
Chen, Yaobin; Indiana University Bloomington, Bloomington, IN 47405
MSS 9109947 A001; 07/15/1991; $10,400; 0 mo.

Flexural Cracking in Landfill Caps
Cheng, S. Jonathan; Larralde-Muro, Jesus; Martin, Joseph; Drexel University, Philadelphia, PA 19104
MSS 9115197 A001; 10/01/1991; $9,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,250

Research Initiation Award: Experimental Study on Laminar and Turbulent Flame Thickness
Cho, Peck; Michigan Technological University, Houghton, MI 49931
CTS 9009518 A001; 06/15/1990; $10,000; 0 mo.

Incipient Fault Detection in Rotating Machines Using a Neural Network
Chow, Mo-yuen; White, Mark; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
ECS 8922727 A003; 07/01/1990; $9,910; 0 mo.

Experimental and Numerical Study of Room Air and Air Contaminant Distribution
Christianson, Leslie; Riskowski, Gerald; Wu, Gwojenn; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9002513 A002; 11/15/1990; $8,500; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,063

Charles Minor Engineering Fellowship Program: Graduate Engineering Education
Clough, G. Wayne; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
EEC 9018436 A002; 09/01/1990; $135,000; 12 mo.

Advances in Design of Automated Wire and Die Bonding Machinery in Microelectronic Manufacturing
Cohen, Ira; Ayyaswamy, Portonovo; University of Pennsylvania, Philadelphia, PA 19104
DDM 9000573 A003; 06/01/1990; $10,000; 9 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Continuously Tunable Light-to-Heavy Hole Semiconductor Laser for the Millimeter and Submillimeter Range (REU Supplement)
Coleman, Paul; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 8822123 A003; 08/15/1989; $4,000; 0 mo.

A Framework for an Integrated Decision Support System for Manufacturing Process Improvement
Cook, Deborah; Texas A&M University Research Foundation, College Station, TX 77843
DDM 9111291 A000; 11/15/1991; $18,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $4,500

Control of Nonstationary Systems Using Information Preserving Neural Networks
Cooper, Douglas; Palmieri, Francesco; University of Connecticut, Storrs, CT 06268
CTS 9008596 A001; 10/15/1990; $5,000; 0 mo.

Structural System Reliability and Optimization - Incorporating Nonlinear Mechanics in Mathematical Programming Approaches
Corotis, Ross; Ramirez, Martin; Johns Hopkins University, Baltimore, MD 21218
MSS 9016018 A002; 02/15/1991; $4,672; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,168

Award for Creativity in Engineering
Costello, Daniel; University of Notre Dame, Notre Dame, IN 46556
EEC 9017558 A002; 09/01/1990; $35,000; 12 mo.

Research Experience for Undergraduates in Science of Microfabrication
Craighead, Harold G.; Cornell University - Endowed, Ithaca, NY 14853
EEC 9200192 A000; 06/01/1992; $47,400; 12 mo.

Gas Dynamic Involving Negative and Mixed Nonlinearity
Cramer, Mark; Watson, Layne; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
CTS 8913198 A003; 01/15/1990; $10,000; 0 mo.

Continuation of REU Site in Structural and Geotechnical Engineering at the University of Maine
Dagher, Habib; Humphrey, Dana; Elgaaly, Mohamed; Caccese, Vincent; University of Maine, Orono, ME 04469-0114
EEC 9200172 A000; 06/01/1992; $53,213; 12 mo.

Synthesis of Robust Controllers Under Perturbations of Mixed Type
Dahleh, Mohammed; University of California-Santa Barbara, Santa Barbara, CA 93106
ECS 9111058 A001; 09/01/1991; $10,000; 0 mo.

Fundamental Deposition Processes in Optical Fiber Manufacturing
Daily, John; University of Colorado at Boulder, Boulder, CO 80309
CTS 9005765 A001; 08/15/1990; $10,000; 0 mo.
Jointly Funded with COMBUSTION AND THERMAL PLASMAS $1,250

Determination of Hot Electron Versus Phonon-Assisted Tunneling Effects in Double Barrier Resonant Tunneling Structures
Daniels-Race, Theda; Duke University, Durham, NC 27708
EEC 9154084 A000; 02/01/1992; $12,000; 12 mo.

Mechanism of Wear of Semiconductors and Ceramics
Danyluk, Steven; Lawn, Brian; University of Illinois at Chicago, Chicago, IL 60680
MSS 8714491 A006; 01/01/1988; $5,000; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Hydrodynamic Interaction and Coalescence of Two Fluid Drops
Davis, Robert; University of Colorado at Boulder, Boulder, CO 80309
CTS 8914236 A003; 12/01/1989; $6,500; 0 mo.

Small Grants for Exploratory Research: Synthesis of Design for (X) Methodologies
Davis, Robert; Clemson University, Clemson, SC 29634
DDM 9116112 A001; 08/01/1991; $4,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,000

Surfactant-Enhanced Extraction of Residual Halogenated Organic Liquids from Sandy Aquifer Materials
Dawson, Helen; Colorado School of Mines, Golden, CO 80401
BCS 9210174 A000; 08/01/1992; $17,870; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $4,468

An Investigation into Methods for Expediting the Transfer of CAD and KBES Technologies for Improved Construction Estimating
De La Garza, Jesus; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 8908570 A001; 08/01/1989; $5,000; 4 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

The Mechanics and Physics of Fracture in Ice
Dempsey, John; Clarkson University, Potsdam, NY 13676
MSS 9007929 A002; 08/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Presidential Young Investigator Award
Dhurjati, Prasad; University of Delaware, Newark, DE 19716
BCS 8552492 A008; 07/01/1986; $47,500; 0 mo.
Jointly Funded with BIOTECHNOLOGY $2,500

Research Experiences for Undergraduates Site at Mechanical and Aerospace Engineering Department, Syracuse University
Dosanjh, Darshan; Syracuse University, Syracuse, NY 13244-5300
EEC 9200508 A000; 05/15/1992; $20,000; 12 mo.

Infrastructure Innovations and Civil Engineering Research in Academia and Industry for Undergraduates
Dowding, Charles; Northwestern University, Evanston, IL 60208
EEC 9200236 A000; 05/01/1992; $38,300; 12 mo.

Constructing Engineers: A Participant-Observation Study of Undergraduate Engineering Education
Downey, Gary; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
SBE 9213511 A000; 09/01/1992; $96,275; 36 mo.

Assessing the 1990-91 California Drought
Dracup, John; University of California-Los Angeles, Los Angeles, CA 90024
BCS 9114753 A001; 07/15/1991; $10,000; 0 mo.

Engineering Faculty Internship: Development of Integrated Constitutive Models, Modeling and Optimization for Isothermal Rolling of Superalloys
Dwivedi, Suren; Dax, F. Robert; West Virginia University Research Corporation, Morgantown, WV 26506
DDM 9113952 A001; 08/15/1991; $10,000; 0 mo.

RUI: Theoretical and Experimental Investigation of Viscous Flow and Convective Heat Transfer in Helicoidal Heat Exchangers (REU Supplement)
Ebadian, M.; Florida International University, Miami, FL 33199
CTS 9017732 A002; 02/01/1991; $15,000; 0 mo.

Coherent Sources in the Vacuum Ultraviolet
Eden, J. Gary; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9022187 A001; 07/01/1991; $10,000; 0 mo.

Analysis of Superconducting Microwave Transmission Lines (REU SUPPLEMENT)
El-Ghazaly, Samir; Arizona State University, Tempe, AZ 85287
ECS 9108933 A001; 08/15/1991; $10,000; 0 mo.

Research Initiation Awards: Screening Vs. Hydrogen Bonding in Chain Molecules
Elliott, Richard; University of Akron, Akron, OH 44325
CTS 9110285 A001; 08/01/1991; $10,000; 0 mo.

RIA: Neural Network Analysis of Granular Fabric
Ellis, Glenn; Clarkson University, Potsdam, NY 13676
MSS 9110287 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Graduate Engineering Education for Women, Minorities and/or Persons with Disabilities
Emery, Ashley; Berg, Cheryl; Glass, Marvin; University of Washington, Seattle, WA 98195
EEC 9116866 A001; 09/15/1991; $108,000; 12 mo.

Kinemataic and Dynamic Accuracy Performance Synthesis for Planar and Spatial Mechanisms
Erdman, Arthur; University of Minnesota-Twin Cities, Minneapolis, MN 55415
MSS 9012456 A001; 08/01/1990; $65,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Graduate Engineering Education for Women, Minorities and/or Persons with Disabilities
Erdman, Carl; Watson, Karan; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
EEC 9017249 A001; 09/01/1990; $101,248; 12 mo.

Increase the Role of Women in Materials Engineering with a Special Emphasis on the Area of Titanium Casting Technology: Graduate Engineering Education
Eylon, Daniel; University of Dayton, Dayton, OH 45469
EEC 9019097 A002; 09/01/1990; $40,500; 12 mo.
Jointly Funded with NSF PLANNING AND EVALUATION $40,500

A Program to Increase the Role of Women in Materials Engineering with a Special Emphasis on the Area of Titanium Casting Technology
Eylon, Daniel; University of Dayton, Dayton, OH 45469
EEC 9019097 A003; 09/01/1990; $40,500; 0 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $40,500

Small Grants for Exploratory Research: System Design Evaluation: Combining the Design Dependent Parameter Approach and Taguchi's Parameter Design Approach
Fabrycky, Wolter; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
DDM 9113081 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with ENGINEERING DESIGN $2,500

NSF Graduate Fellowships in Support of a Program to Prepare Minority Graduate Students for a Career in Engineering Education
Feisel, Lyle; SUNY at Binghamton, Binghamton, NY 13901
EEC 9116743 A001; 09/15/1991; $67,500; 12 mo.

Presidential Young Investigator Award: Turbulent Thermal Convection in Rotating and Stratefied Fluids
Fernando, Harindra; Arizona State University, Tempe, AZ 85287
CTS 8657378 A009; 07/01/1987; $52,584; 0 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $1,250

Graduate Engineer Education for Women, Minorities, and/or Persons with Disabilities
Ferry, David; Montgomery, Douglas; Arizona State University, Tempe, AZ 85287
EEC 9116833 A001; 09/15/1991; $81,000; 12 mo.

Engineering Research Center for Advanced Technology for Large Structural Systems
Fisher, John; Pense, Alan; Lehigh University, Bethlehem, PA 18015
EEC 8943455 A005; 05/01/1989; $683,099; 12 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS $33,100
EEC 8943455 A006; 05/01/1989; $2,128,180; 12 mo.

Engineering Research Experience for Women and Minority Undergraduates
Fletcher, Leroy; Texas A&M University Research Foundation, College Station, TX 77843
EEC 9100966 A001; 06/15/1991; $5,000; 0 mo.

Research Experience for Undergraduates Site
Francis, Lorraine; McCormick, Alon; Birmingham, Don; University of Minnesota-Twin Cities, Minneapolis, MN 55415
EEC 9200158 A000; 04/15/1992; $49,755; 12 mo.

Flow Cytometric Study of Ciliate Physiology
Fredrickson, Arnold; Srienc, Friedrich; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 9001095 A003; 06/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Laser Radar Performance and Improved Beam Alignment
Frehlich, Rod; University of Colorado at Boulder, Boulder, CO 80309
ECS 9021303 A002; 09/01/1991; $5,000; 0 mo.

Presidential Young Investigator Award
French, Catherine; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 8451536 A009; 06/01/1985; $15,000; 9 mo.

Research Initiation Award: Evaluation of Cohesionless Soil Uniformity and Fabric Using Image Analysis (REU Supplement)
Frost, J. David; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9011232 A001; 09/01/1990; $788; 8 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $788

Research Initiation Award: Evaluation of Cohesionless Soil Uniformity and Fabric Using Image Analysis (REU Supplement)
Frost, J. David; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9296259 A000; 09/01/1992; $25,200; 5 mo.
Jointly Funded with GEOMECHAN, GEOTECH AND GEOENVIRN $1,250

Center for Iron and Steelmaking Research
Fruehan, Richard; Carnegie-Mellon University, Pittsburgh, PA 15213
EEC 8421112 A008; 05/01/1985; $45,000; 12 mo.

Testing of Large Smart Structures Using Embedded Sensors
Fuhr, Peter; Huston, Dryver; Spillman, Jr., William; University of Vermont and State Agricultural College, Burlington, VT 05405
BCS 9024390 A001; 03/01/1991; $10,000; 0 mo.

Development of an Experimental Approach to the Health Monitoring of Structural Systems
Garcia, Ephrahim; Vanderbilt University, Nashville, TN 37240
EEC 9209070 A000; 02/15/1992; $12,000; 12 mo.

Center for Laser Studies Undergraduate Research Associate Program
Garmire, Elsa; Mendez, Antonio; University of Southern California, Los Angeles, CA 90089
EEC 9200047 A000; 05/01/1992; $45,965; 12 mo.

Semiconductor Quantum Electron Wave Devices
Gaylord, Thomas K.; Brennan, Kevin; Glytsis, Elias; Harris, Michael H.; Martin, Kevin; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9111866 A001; 09/01/1991; $10,000; 0 mo.

Presidential Young Investigator Award
Georgakakos, Konstantine; University of Iowa, Iowa City, IA 52242
BCS 8657526 A008; 07/01/1987; $34,936; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,484

Film Flow Instabilities and Spatiotemporal Dynamics
Gollub, Jerry; Haverford College, Haverford, PA 19041
CTS 9115005 A000; 02/15/1992; $109,453; 12 mo.

Processing of Superconducting Ceramics Creativity Award
Kander, Ronald; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
EEC 9019956 A002; 09/01/1990; $35,000; 12 mo.

Minority Research Initiation Awards: Non-Invasive Kinetic Studies of Film Decontamination from the Inner Surfaces of Tubes
Grant, Christine; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
CTS 9115327 A000; 01/15/1992; $120,953; 36 mo.

REU Site in Civil Engineering at the University of Notre Dame
Gray, William; University of Notre Dame, Notre Dame, IN 46556
EEC 9200414 A000; 05/01/1992; $44,195; 12 mo.

An Integrated Undergraduate Program on Semiconductor Devices for Power Flow Control
Gray, Jeffrey; Heydt, Gerald; Neudeck, Gerold; Ong, Chee-Mun; Purdue University Research Foundation, West Lafayette, IN 47907
EEC 9212409 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Interfacial Fluid Dynamics of the Lung
Grotberg, James; Northwestern University, Evanston, IL 60208
CTS 9013083 A001; 08/01/1991; $4,000; 0 mo.

Engineering Faculty Internship: In-Situ Sensor for Aluminum Aging Process Control
Groza, Joanna; University of California-Davis, Davis, CA 95616-8671
DDM 9213685 A000; 07/15/1992; $25,000; 12 mo.

Graduate Engineering Education at Michigan State University
Grulke, Eric; Michigan State University, East Lansing, MI 48824
EEC 9018669 A001; 09/15/1990; $108,000; 12 mo.

Graduate Engineering Education
Gulari, Erdogan; Brake, Mary; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
EEC 9018746 A001; 09/01/1990; $135,000; 12 mo.

Engineering Creativity Award for Mathew Wilson
Haegel, Nancy; University of California-Los Angeles, Los Angeles, CA 90024
EEC 9021051 A002; 09/01/1990; $35,000; 12 mo.

Research Experiences for Undergraduates in Laser Development and Applications
Hagan, David; Guenther, Karl; Richardson, Martin; University of Central Florida, Orlando, FL 32816
EEC 9200390 A000; 05/15/1992; $50,571; 12 mo.

GIS Based Hydrologic Modeling of Watershed Processes Creativity Award
Hannoura, Alim; University of New Orleans, New Orleans, LA 70148
EEC 9019954 A002; 08/15/1990; $35,000; 12 mo.

Judgements of Responsibilities for Disaster Consequences
Hans, Valerie; Nigg, Joanne; University of Delaware, Newark, DE 19716
SBE 9213737 A000; 09/01/1992; $76,484; 12 mo.
Jointly Funded with EARTHQUAKE SYSTEMS INTEGRATION $35,000

Immobilization of Homogeneous Catalysts: Supported Aqueous Phases, Ion Exchange Resins, and Membranes
Hanson, Brian; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
CTS 9101846 A001; 06/01/1991; $9,000; 0 mo.
Jointly Funded with KINETICS AND CATALYSIS $1,250

Mechanical Damping for Improved Earthquake Resistance of Structures
Hanson, Robert; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9114755 A001; 08/01/1991; $10,000; 0 mo.

Graduate Engineering Education
Harris, Gary; Thigpen, Lewis; Davis, Johnetta; Howard University, Washington, DC 20059
EEC 9116823 A001; 09/15/1991; $94,500; 12 mo.
Jointly Funded with NSF PLANNING AND EVALUATION $36,290

System Identification and Adaptive Control Using Neural Networks - Creativity Award
Harris, Thomas; Vanderbilt University, Nashville, TN 37240
EEC 9396008 A000; 09/01/1992; $1,500; 4 mo.

Evaluation of Condition of Structures from Transient Response
Hearn, George; University of Colorado at Boulder, Boulder, CO 80309
MSS 9102379 A001; 05/01/1991; $2,500; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $625

Research Creativity Award for Women and Minorities
Helmicki, Arthur; University of Cincinnati-Main Campus, Cincinnati, OH 45221
EEC 9196111 A002; 02/26/1991; $35,000; 12 mo.

Research Initiation Award: Combustion in an Asymmetric Configuration
Hertzberg, Jean; University of Colorado at Boulder, Boulder, CO 80309
CTS 9109778 A001; 06/01/1991; $10,000; 0 mo.

Research Initiation Award: Resonating Anisotropic Solids: Novel Elastic Constant Measurements (REU Supplement)
Heyliger, Paul; Colorado State University, Fort Collins, CO 80523
MSS 9010099 A002; 09/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Nanometer Tunneling and Coherent Wave Quantum Devices
Higgins, Richard; Martin, Kevin; Georgia Tech Research Corporation - GA Tech Research Institute, Atlanta, GA 30332
ECS 8922512 A002; 07/15/1990; $10,000; 0 mo.

DEDS: A New Paradigm for Performance Analysis, Computation and Optimization
Ho, Yu-Chi; Harvard University, Cambridge, MA 02138
EEC 9212122 A000; 09/15/1992; $365,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and SYSTEMS THEORY $352,500

Photonic Research for Opto-Electronics and Optical Communication Curriculum Development
Ho, Ping-Pei; Dorsinville, Roger; Ahmed, Samir; Shum, Kai; Alfano, Robert; CUNY-City College, New York, NY 10031
EEC 9212310 A000; 09/15/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Strategic Manufacturing Initiative: Nanotechnology for Advanced Mass Storage
Hocken, Robert; Greene, Richard; Nicollian, Edward; Shelnutt, James; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 8913964 A005; 10/01/1989; $10,000; 0 mo.

Cooperative Agreement: Research in Precision Engineering
Hocken, Robert; Raja, Jayaraman; Shelnutt, James; Trumper, David; University of North Carolina at Charlotte, Charlotte, NC 28223
DDM 9114710 A001; 10/01/1991; $10,000; 0 mo.

Research Experience for Undergraduates: Emerging Technologies in Electrical Engineering
Horenstein, Mark; Kerr, Thomas; Boston University, Boston, MA 02215
EEC 9200389 A000; 06/01/1992; $49,980; 12 mo.

Kinetic Studies and Modelling of Interactions of Nutrient, Hormone, Growth Rate and Form Change in Carrot Embryo Development
Hu, Wei-Shou; Staba, E.John; Cooke, Todd; University of Minnesota-St. Paul, Minneapolis, MN 55455
BCS 9015817 A001; 04/15/1991; $5,000; 0 mo.

Research Experiences for Undergraduates: Modeling, Analysis, and Control of Engineering Systems
Hu, Jian-Qiang; Kerr, Thomas; Boston University, Boston, MA 02215
EEC 9200419 A000; 06/01/1992; $52,570; 12 mo.

Seismic Cone Tests in a Particulate Assembly
Huang, An-Bin; Lee, Jong; Clarkson University, Potsdam, NY 13676
MSS 9021973 A001; 07/15/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Membrane Fusion and Chemotropic Approaches to Peripheral Nerve Regeneration (REU Supplement)
Hubbell, Jeffrey; Bittner, George; University of Texas at Austin, Austin, TX 78712
ECS 8915178 A003; 09/01/1989; $15,000; 0 mo.

Preserving Historic Buildings of Major Importance
Hynes, Mary; Department of Army Waterways Experiment Station, Vicksburg, MS 39180
MSS 9214843 A000; 04/15/1992; $48,000; 9 mo.
Jointly Funded with STRUCT SYSTS AND CONSTRCT PROCES $7,000

Intelligent Material Handling Systems: Intelligent Dynamic Control of Automated Guided Vehicle (AGV) Systems
Interrante, Leslie; Messimer, Sherri; University of Alabama in Huntsville, Huntsville, AL 35899
DDM 9113983 A001; 09/15/1991; $10,000; 0 mo.

Development of Hybrid Discrete Element/Finite Element Model for Large Deformation Geotechnical Engineering Problems
Ishibashi, Isao; Nguyen, Duc; Old Dominion University Research Foundation, Norfolk, VA 23508-0369
MSS 8920878 A001; 08/15/1990; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Presidential Young Investigator Award: Design for Injection Molding
Ishii, Kosuke; Ohio State University Research Foundation, Columbus, OH 43210
DDM 9157212 A001; 10/01/1991; $10,000; 0 mo.

Planning Grant for Discrete Field Dynamic Stability Analysis of Three-Dimensional X-Braced and Warren Truss Lattices
Issa, R. Raymond; University of Southern Mississippi, Hattiesburg, MS 39406
EEC 9154415 A000; 03/15/1992; $0; 3 mo.

Planning Grant for Discrete Field Dynamic Stability Analysis of Three-Dimensional X-Braced and Warren Truss Lattices
Issa, R. Raymond; University of Florida, Gainesville, FL 32611
EEC 9296150 A000; 06/01/1992; $12,000; 14 mo.

Numerically Controlled Machining of Sculptured Surfaces
Jerard, Robert; Drysdale, Robert; University of New Hampshire-Durham, Durham, NH 03824
DDM 9015851 A001; 07/15/1991; $9,425; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,178

Presidential Young Investigator Award
Jones, James; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 8957191 A003; 10/01/1989; $11,500; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,622

Research Experience for Undergraduates in Microelectronics
Jones, W.; Gielisse, P.; Wu, Kuang-Hsi; Chellaiah, S.; Florida International University, Miami, FL 33199
EEC 9200385 A000; 05/15/1992; $56,000; 12 mo.

Fluid Dynamics of Two Miscible Liquids with Slow Diffusion and Gradient Stresses
Joseph, Daniel; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9020666 A001; 04/01/1991; $5,000; 0 mo.

Laser Beam - Splitting and Materials Processing
Kannatey-Asibu, Elijah; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9114148 A001; 09/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Center for UMass-Industry Research on Polymers - Joint Research Project with Liberal Arts College Faculty
Kantor, Simon; Tirrell, David; University of Massachusetts-Amherst, Amherst, MA 01003
EEC 8615271 A014; 08/15/1986; $31,000; 0 mo.
Jointly Funded with ARMY $21,000

Presidential Young Investigator Award: Dynamic Modeling of Wind-Induced Lateral-Torsional Motion of Structures
Kareem, Ahsan; University of Notre Dame, Notre Dame, IN 46556
BCS 9096274 A002; 09/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Asymptotically Stable Multiple Input-Multiple Output Direct Model Reference Adaptive Controllers for Processes Not Necessarily Satisfying a Positive Real Constraint
Kaufman, Howard; Rensselaer Polytechnic Institute, Troy, NY 121803590
ECS 9111565 A001; 09/01/1991; $5,000; 0 mo.

Graduate Engineering Education for Women, Minorities, and/or Persons with Disabilities
Keer, Leon; Northwestern University, Evanston, IL 60208
EEC 9019244 A001; 09/01/1990; $94,500; 12 mo.
EEC 9019244 A002; 09/01/1990; $94,500; 0 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $94,500

Role of Extensional Stresses on the Interfacial Stability of Multiphase Flow Processes
Khomami, Bamin; Washington University, St. Louis, MO 63130
CTS 8914354 A005; 01/01/1990; $4,245; 0 mo.

Transient and Stationary Multiwave Mixings in Highly Nonlinear Thin Materials
Khoo, Iam-Choon; Pennsylvania State Univ.-University Park, University Park, PA 16801
ECS 8920830 A002; 07/01/1990; $5,000; 0 mo.

RIA: Structural Relaxations in Glass-Forming Oxide Melts
Kieffer, John; University of Illinois at Chicago, Chicago, IL 60680
MSS 9008918 A001; 07/01/1990; $8,001; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,000

Engineering REU Site Proposal: Undergraduate Research in Mechanical Engineering
Kittelson, David; University of Minnesota-Twin Cities, Minneapolis, MN 55415
EEC 9200418 A000; 05/15/1992; $50,351; 12 mo.

Space-Time Evolution of Near-Wall Velocity Gradients That Generate Organized Streamwise Vorticity
Klewicki, Joseph; University of Utah, Salt Lake City, UT 84112
CTS 9120076 A000; 03/15/1992; $105,855; 12 mo.

Quantitative Imaging of Regional Pulmonary Blood Flow
Knight, Herbert; University of Virginia-Main Campus, Charlottesville, VA 22901
BCS 9154521 A000; 01/15/1992; $12,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $3,000

Presidential Young Investigator Award: Flow of Materials with Microstructure
Koch, Donald; Cornell University - Endowed, Ithaca, NY 14853
CTS 8857565 A004; 07/01/1988; $10,000; 0 mo.
Jointly Funded with FLUID DYNAMICS AND HYDRAULICS $2,500

Application of Cryogenic Principles to Emergency Metal Cutting - Creativity Award
Kokini, Klod; Purdue University Research Foundation, West Lafayette, IN 47907
EEC 9019955 A002; 08/01/1990; $35,000; 12 mo.

Presidential Young Investigator Award
Komvopoulos, Kyriakos; University of California-Berkeley, Berkeley, CA 94720
MSS 8996309 A005; 08/25/1989; $10,000; 0 mo.

Conceptual Models for Explaining Process Behavior from Process Trends - Creativity Award
Kramer, Mark; Massachusetts Institute of Technology, Cambridge, MA 02139
EEC 9021047 A002; 09/01/1990; $35,000; 12 mo.

Engineering Research Center for the Carnegie Mellon Data Storage Systems Center
Kryder, Mark; Carnegie-Mellon University, Pittsburgh, PA 15213
EEC 8907068 A005; 04/15/1990; $2,470,565; 12 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS $40,000

Models of Warning Systems for Natural Hazards
Krzysztofowicz, Roman; University of Virginia-Main Campus, Charlottesville, VA 22901
BCS 9016979 A003; 02/15/1991; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Presidential Young Investigators Award: Millimeter Wave and Microwave Remote Sensing
ECS 9296066 A000; 01/01/1992; $89,452; 4 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $2,000
Kuga, Yasuo; University of Washington, Seattle, WA 98195
ECS 9296066 A001; 01/01/1992; $13,000; 0 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $1,084

Engineering Values as a Barrier to the Effective Use of Skilled Workers
Kuhn, Sarah; Richardson, Charles; Wheeler, Brian; University of Massachusetts Lowell Research Foundation, Lowell, MA 01854
SBE 9112265 A001; 09/01/1991; $6,300; 12 mo.

Lab Research Experience for Undergraduates in Developing Materials and Structural Components Used in Small-Scale Models
Kukreti, Anant; Wallace, Benjamin; University of Oklahoma-Norman Campus, Norman, OK 73019
EEC 9200396 A000; 06/01/1992; $49,395; 12 mo.

Photon Duplication
Kumar, Prem; Yuen, Horace; Northwestern University, Evanston, IL 60208
ECS 9106599 A000; 01/01/1992; $88,041; 12 mo.
Jointly Funded with QUANT ELECTRON, PLASMA, AND ELECTRO $1,157

Research Initiation Award: Geomechanical Investigation of Time Dependence of In-Situ Stresses in Soils
Kumbhojkar, Arvind; University of Miami, Coral Gables, FL
MSS 9009156 A002; 08/15/1990; $8,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,000

Determination of Metal-Oxygen Bond Strength in Oxide Catalysts
Kung, Harold; Northwestern University, Evanston, IL 60208
CTS 9015221 A002; 02/01/1991; $5,000; 0 mo.

Modeling of Remote Plasma Assisted Materials Processing: Electron Transport and Selective Chemistry
Kushner, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 9109326 A001; 09/01/1991; $4,450; 0 mo.

Particles in rf Plasma Processing Discharges: Generation, Transport and Plasma Dynamics
Kushner, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9113215 A001; 08/15/1991; $4,450; 0 mo.

Ultrasonic Measurements in Concentrated Suspensions
Kytomaa, Harri; Massachusetts Institute of Technology, Cambridge, MA 02139
CTS 9107449 A001; 09/01/1991; $12,000; 0 mo.

Creativity Award for Graduate Study in Engineering
LaFleur, Ronald; Clarkson University, Potsdam, NY 13676
EEC 9017553 A002; 08/01/1990; $35,000; 12 mo.

Undergraduate Engineering Design Initiative: Projects Which Aid the Disabled - Design and Modification of Assist Devices to Aid Cerebral Palsy Patients in Working Environment
Lam, Paul; University of Akron, Akron, OH 44325
BCS 8801380 A003; 06/01/1988; $18,900; 24 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $3,750

Presidential Young Investigator Award: Thermal Aspects of Grinding
Lavine, Adrienne; University of California-Los Angeles, Los Angeles, CA 90024
DDM 8857677 A005; 08/01/1988; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Research Initiation Award: One-Dimensional and Multi-Dimensional Stress-State Analyses of Wetting-Induced Collapse in Unsaturated Soils
Lawton, Evert; University of Utah, Salt Lake City, UT 84112
MSS 9196241 A001; 08/15/1991; $10,000; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Workshop to Assess Matters of Common Concern in Engineering Education in the USSR and USA
Leake, Woodrow; American Society For Engineering Education, Washington, DC 20036
EEC 9115556 A001; 07/01/1991; $7,000; 0 mo.
Jointly Funded with US/USSR ACTIVITIES $7,000

Research Initiation Award: Coupled Magneto-Thermo-Mechanical Behavior of Superconducting Composites
Lee, Jong; Clarkson University, Potsdam, NY 13676
MSS 9009490 A001; 05/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Research and Curriculum Development for Power Plant Intelligent Distributed Control
Lee, Kwang; Edwards, Robert; Mayer, Jeffrey; Pennsylvania State Univ.-University Park, University Park, PA 16801
EEC 9212132 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Technology and Curriculum Development for Packaging Optoelectronic Parallel Computing Systems Based on Free-Space Optical Interconnects
Lee, Sing; Ozguz, V.; University of California-San Diego, San Diego, CA 92093
EEC 9212156 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Relation of Protein Electrostatic Properties to Separations Behavior
Lenhoff, Abraham; Kaler, Eric; University of Delaware, Newark, DE 19716
CTS 9111604 A001; 09/01/1991; $5,000; 0 mo.

Feasibility of Utilizing Optical Fibers for Multicontaminant Monitoring of Unsaturated Environmental Systems
Leonard, Kathleen; University of Alabama in Huntsville, Huntsville, AL 35899
BCS 9210283 A000; 09/01/1992; $17,864; 18 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $4,466

Fracture Testing Technology for Advanced Ceramic and Cementitious Matrix Based Composites
Li, Victor; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9019156 A001; 08/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Dynamic of R.F. Discharges for Materials Etching (REU SUPPLEMENT)
Lieberman, Michael; Lichtenberg, Allan; University of California-Berkeley, Berkeley, CA 94720
ECS 8910827 A003; 01/15/1990; $7,500; 0 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $938

Award for Creativity in Engineering for Lisa Harvey
Lin, James; University of Illinois at Chicago, Chicago, IL 60680
EEC 9021054 A002; 09/01/1990; $35,000; 12 mo.

Support Services for GRT Program (Contracted DGC 9216105)
Linsky, Norman; National Biosystems, Inc., Rockville, MD 20852
EEC 9224446 A000; 09/17/1992; $7,925; 3 mo.
Jointly Funded with GRADUATE TRAINEESHIPS PROGRAM $7,925

Transformer Magnetization Under the Influence of Geomagnetically Induced Currents
Liu, Yilu; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
ECS 9113014 A001; 08/15/1991; $10,000; 0 mo.

Research Initiation Award: Active Excitement of Three-Dimensional Layers
Loth, Eric; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9010594 A001; 07/01/1990; $8,000; 4 mo.

Research Experiences for Undergraduates in Particulate Systems Engineering, Summer 1992
Loyalka, Sudarshan; Chan, Paul; Warder, Richard; Tompson, Robert; Ghosh, Tushar; University of Missouri-Columbia, Columbia, MO 65211
EEC 9200416 A000; 05/01/1992; $50,000; 12 mo.

Introducing Ethics Cases in Engineering Coursework
Luegenbiehl, Heinz; Rose-Hulman Institute of Technology, Terre Haute, IN 47803
SBE 9112430 A000; 06/01/1992; $30,154; 12 mo.

Experiment Design and Analysis for Identifying Mechanical Properties of Physiological Systems at Low Frequencies
Lutchen, Kenneth; Boston University, Boston, MA 02215
BCS 9011168 A003; 08/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Research Initiation: Ultrashort Laser Pulse Amplification (REU SUPPLEMENT)
MacFarlane, Duncan; University of Texas at Dallas, Richardson, TX 75083-0688
ECS 9006472 A002; 08/01/1990; $10,000; 0 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $1,250

Environmental Issues in the Science Classroom Management of Hazardous Substances
Magee, Richard; The Foundation at NJIT, Newark, NJ 07102
EEC 9247006 A000; 06/01/1992; $104,165; 12 mo.
Jointly Funded with TEACHER ENHANCEMENT PROGRAM $52,082

Research Initiation Award: Dynamic Behavior and Response of Truss Structures After the Onset of Progressive Collapse
Malla, Ramesh; University of Connecticut, Storrs, CT 06268
MSS 9110900 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Engineering Research Center for Systems Research
Marcus, Steven; Baras, John; University of Maryland-College Park, College Park, MD 20742
EEC 8803012 A012; 02/01/1988; $68,617; 12 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS and YOUNG SCHOLARS PROGRAM $39,308
EEC 8803012 A013; 02/01/1988; $2,360,000; 12 mo.
Jointly Funded with TEACHER ENHANCEMENT PROGRAM $50,000

Engineering Research Center for Advanced Electronic Materials Processing
Masnari, Nino; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
EEC 8721505 A006; 09/15/1988; $174,400; 12 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS $25,000

Interinstitutional Fellowship Program: Graduate Engineering Education
Masnari, Nino; Martin, Harold; North Carolina State University at Raleigh, Raleigh, NC 27696-8208
EEC 9116679 A001; 09/15/1991; $108,000; 12 mo.
Jointly Funded with NSF PLANNING AND EVALUATION $108,000

GT-SUPREEM: The Georgia Tech Summer Undergraduate Program of Research in Electrical Engineering for Minorities
May, Gary; Sayle, William; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
EEC 9200220 A000; 05/15/1992; $51,500; 12 mo.

Distribution of Power Generation System Production Costs
Mazumdar, M.; University of Pittsburgh, Pittsburgh, PA 15260
ECS 9106396 A001; 08/15/1991; $10,000; 0 mo.

Linear and Nonlinear Guided Wave Optical Devices Based on a Rigorous Theory for Intersecting Waveguides
McCaughan, Leon; University of Wisconsin-Madison, Madison, WI 53706
ECS 8802714 A003; 09/15/1988; $4,000; 0 mo.

CSU/TTU Cooperative Research Program in Wind Engineering
Mehta, Kishor; Texas Tech University, Lubbock, TX 79409
BCS 8821163 A005; 06/01/1989; $40,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $3,750

Creativity Award in Engineering
Mei, Chiang; Massachusetts Institute of Technology, Cambridge, MA 02139
EEC 9021049 A003; 09/01/1990; $30,000; 12 mo.

CSU/TTU Cooperative Research Program for Wind Engineering
Meroney, Robert; Colorado State University, Fort Collins, CO 80523
BCS 8821542 A004; 06/01/1989; $40,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $3,750

Experimental Investigation of the Solid/Liquid Interface of Thin Films During Thermal Processing - Creativity Award
Miaoulis, Ioannis; Tufts University, Medford, MA 02155
EEC 9017557 A002; 08/01/1990; $35,000; 12 mo.

Presidential Young Investigator Award: Ultrashort Laser-Matter Interactions
Milchberg, Howard; University of Maryland-College Park, College Park, MD 20742
ECS 8858062 A010; 08/15/1988; $18,773; 0 mo.
Jointly Funded with QUANT ELECTRON, PLASMA, AND ELECTRO $2,500

Presidential Young Investigator Award
Miller, William; Northwestern University, Evanston, IL 60208
BCS 9058416 A003; 11/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Research Initiation: Economic Determination of Specification Levels and Delivery Priorities for Semiconductor Products
Min, Kyung Jo; Iowa State University, Ames, IA 50011
DDM 9110945 A001; 08/01/1991; $5,250; 0 mo.

Intelligent Material Handling Systems: Integrated Modelling and Control for Intelligent Material Handling
Mitchell, Owen; Harbison-Briggs, Karan; Lewis, Frank; University of Texas at Arlington, Arlington, TX 76019
MSS 9114009 A001; 09/01/1991; $15,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Noise in a Two-Dimensional Electron Gas
Mitin, Vladimir; Wayne State University, Detroit, MI 48202
ECS 9110705 A001; 08/15/1991; $10,000; 0 mo.

Engineering Faculty Internship: Characterization of Process Parameters for High-Speed Heat-Set Web Offset Lithography
Modi, Vijay; Columbia University, New York, NY 10027
DDM 9113801 A001; 07/15/1991; $10,000; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Research Experiences for Electrical Engineering Undergraduates
Moeller, Arthur; Niederjohn, Russell; Heinen, James; Richie, James; Hock, Jeffrey; Marquette University, Milwaukee, WI 53233
EEC 9200057 A000; 05/01/1992; $68,470; 24 mo.

Design of a Nonlinear Class of Adaptive Stabilizing Controllers
Mohler, Ronald; Chen, Larry; Oregon State University, Corvallis, OR
97331-5503
ECS 8913773 A004; 03/01/1990; $12,500; 0 mo.

Presidential Young Investigator Award: An Expert System Assisted Power Flow Evaluation
Momoh, James; Howard University, Washington, DC 20059
ECS 8657559 A007; 07/01/1987; $15,000; 0 mo.

Continuous Curing of Filament Wound Structrues Using Infrared Heating
Moon, Tess; University of Texas at Austin, Austin, TX 78712
DDM 9109592 A000; 12/01/1991; $60,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $15,000

Research Experience for Undergraduates
Moore, Daniel; Bostian, Charles; Claus, Richard; Connors, Richard; Davis, Nathaniel; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
EEC 9200476 A000; 05/01/1992; $50,000; 12 mo.

A Unified Education Curriculum for Freshman Engineers: Emphasizing Creativity and Conceptualization in Professional Engineer Preparation
Morgan, James; Prairie View A&M Research Foundation, Prairie View, TX 77446
MSS 9120678 A000; 05/15/1992; $50,000; 12 mo.

NSF-GEE Project: Increasing the Number of Minorities Earning Doctoral Degrees in Engineering
Morris, David; University of Virginia-Main Campus, Charlottesville, VA 22901
EEC 9018183 A002; 09/01/1990; $94,500; 12 mo.

Graduate Engineering Education for Women, Minorities, and/or Persons with Disabilities
Morrison, H. Frank; University of California-Berkeley, Berkeley, CA 94720
EEC 9018414 A003; 09/01/1990; $81,000; 12 mo.

Noilica Based Optical Fibers
Morse, Theodore; Brown University, Providence, RI 02912
ECS 8916997 A003; 05/01/1990; $8,000; 0 mo.
Jointly Funded with LIGHTWAVE TECHNOLOGY $1,000

Research Experiences for Undergraduate Site
Murhammer, David; Rodgers, Victor G.; University of Iowa, Iowa City, IA 52242
EEC 9200510 A000; 06/01/1992; $76,000; 24 mo.

A Study of a Solar-Thermochemical Energy Transport System for the Pacific Northwest
Murray, Jean; Portland State University, Portland, OR 97207
CTS 9010338 A001; 07/01/1990; $10,430; 9 mo.

Biosensors for Tissue Engineering
Nair, Pankajam; Louisiana Tech University, Ruston, LA 71272
BCS 8913465 A005; 09/01/1989; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Analytical Model of Cable-Stayed Bridge Nonlinear Dynamics for Mitigation of Extreme Load Effects
Namini, Ahmad; University of Miami, Coral Gables, FL 33124
BCS 9110472 A001; 07/01/1991; $9,000; 0 mo.

Lateral Confinement of Concrete Using High-Strength Fiber Reinforcement
Nanni, Antonio; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9108598 A002; 09/15/1991; $9,822; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,228

Electrical Engineering Design Projects to Support Research Conducted at the National Solar Observatory
Nemir, David; University of Texas at El Paso, El Paso, TX 79968
EEC 9200391 A000; 06/01/1992; $105,246; 24 mo.

Presidential Young Investigator Award: Complexity Uncertainty, Information, and Organization in Control System Design for Modern Engineering Systems
Nett, Carl; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9058397 A004; 09/01/1990; $10,000; 0 mo.

Graduate Engineering Education for the Development of Electrical and Computer Engineering Faculty
Niederjohn, Russell; Heinen, James; Marquette University, Milwaukee, WI 53233
EEC 9018457 A002; 09/01/1990; $40,500; 12 mo.

Graduate Research Fellowship Program
None, None; Cornell University - Endowed, Ithaca, NY 14853
GER 9253848 A000; 06/01/1992; $215,000; 60 mo.

Graduate Research Fellowship Program
None, None; Harvard University, Cambridge, MA 02138
GER 9253859 A000; 06/01/1992; $100,000; 60 mo.

Graduate Research Fellowship Program
None, None; University of Illinois at Urbana-Champaign, Urbana, IL 61801
GER 9253864 A000; 06/01/1992; $115,000; 60 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $107,158

Graduate Research Fellowship Program
None, None; Massachusetts Institute of Technology, Cambridge, MA 02139
GER 9253879 A000; 06/01/1992; $215,000; 60 mo.

Graduate Research Fellowship Program
None, None; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
GER 9253883 A000; 06/01/1992; $215,000; 60 mo.

Graduate Research Fellowship Program
None, None; Princeton University, Princeton, NJ 08544
GER 9253914 A000; 06/01/1992; $115,000; 60 mo.

Graduate Research Fellowship Program
None, None; Stanford University, Stanford, CA 94305
GER 9253929 A000; 06/01/1992; $215,000; 60 mo.

Graduate Research Fellowship Program
None, None; Yale University, New Haven, CT 06520
GER 9253954 A000; 06/01/1992; $100,000; 60 mo.

Graduate Research Fellowship Program
None, None; California Institute of Technology, Pasadena, CA 91125
GER 9255681 A000; 06/01/1992; $215,000; 60 mo.

Graduate Research Fellowship Program
None, None; University of California-Berkeley, Berkeley, CA 94720
GER 9255682 A000; 06/01/1992; $215,000; 60 mo.

Graduate Research Fellowship Program
None, None; Carnegie-Mellon University, Pittsburgh, PA 15213
GER 9255691 A000; 06/01/1992; $215,000; 60 mo.

Graduate Research Fellowship Program
None, None; University of Chicago, Chicago, IL 60637
GER 9255694 A000; 06/01/1992; $215,000; 60 mo.

NSF Self-Sufficient Partnership for Research with University of Arizona Center for Microcontamination Control
O'Hanlon, John; University of Arizona, Tucson, AZ 85721
EEC 9022924 A002; 09/01/1990; $43,000; 0 mo.

Modelling of Penetration Resistance and Static Capacity of Piles Driven by Vibration (REU Supplement)
O'Neill, Michael; Vipulanandan, Cumaraswamy; University of Houston, Houston, TX 77204
MSS 8920412 A002; 08/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Engineering Faculty Intership: System Information Integration
Occena, Luis; University of Missouri-Columbia, Columbia, MO 65211
DDM 9214719 A000; 07/01/1992; $7,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,000

Research Initiation: Investigation of the Thermomechanical Behavior of Compression Molded Fiber Reinforced Composite Parts
Osswald, Tim; University of Wisconsin-Madison, Madison, WI 53706
DDM 9009158 A002; 07/01/1990; $10,000; 0 mo.

Research Initiation: Negative Ion and Modulated Discharge Processing Studies (REU Supplement)
Overzet, Lawrence; University of Texas at Dallas, Richardson, TX 75083-0688
ECS 9009662 A002; 09/01/1990; $10,000; 0 mo.
Jointly Funded with QUANT ELECTRON, PLASMA AND ELECTRO $1,250

Engineering Faculty Internship: Development of Low Cost Precision Investment Casting Process with 97-100% Recovery of Good Products
Owusu, Yaw; Herman, Marvin; Vonnegut, George; Jackson, James; Florida Agricultural and Mechanical University, Tallahassee, FL 32307
DDM 9213703 A000; 08/01/1992; $9,995; 12 mo.

Friction of Granular Soil Along an Interface
Paikowsky, Samuel; University of Massachusetts Lowell Research Foundation, Lowell, MA 01854
MSS 9020526 A001; 07/01/1991; $9,500; 0 mo.

Generalized Layout Problems in Structural Optimization
Papalambros, Panos; Kikuchi, Noboru; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 8917430 A003; 04/01/1990; $5,000; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Genetic Analysis and Metabolic Engineering of Anaerobic Butyric-Acid Clostridia
Papoutsakis, Eleftherios; Bennett, George; Rudolph, Frederick; William Marsh Rice University, Houston, TX 77252
BCS 8912094 A005; 10/01/1989; $10,000; 8 mo.

Genetic Analysis and Metabolic Engineering of Anaerobic Butyric-Acid Clostridia
Papoutsakis, Eleftherios; Welker, Neil; Northwestern University, Evanston, IL 60208
BCS 8912209 A004; 09/01/1989; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Undergraduate Summer Research Program in Mechanical Engineering
Pauley, Laura; Jacobs, Harold; Pennsylvania State Univ.-University Park, University Park, PA 16801
EEC 9200175 A000; 04/15/1992; $55,875; 12 mo.

Award for Creativity in Engineering for Kimberlee Wallace
Payne, Gregory; University of Maryland-Baltimore County, Baltimore, MD 21228
EEC 9021048 A002; 08/15/1990; $35,000; 12 mo.

A Conference for Exploration of a National Engineering Information Service
Penniman, W.; Liston, David; United Engineering Trustees Inc., New York, NY 10017
EEC 9206728 A000; 05/01/1992; $21,800; 12 mo.

An REU Site in Chemical Engineering
Peppas, Nikolaos; Caruthers, James; Wiest, John; Delgass, W. Nicholas; Lackritz, Hilary; Purdue University Research Foundation, West Lafayette, IN 47907
EEC 9200070 A000; 07/01/1992; $50,000; 12 mo.

New Device Concepts and Intraband Processes
Perera, A.G. Unil; University of Pittsburgh, Pittsburgh, PA 15260
ECS 9006078 A002; 01/01/1991; $4,795; 8 mo.

Presidential Young Investigator Award: Robotic Assembly
Peshkin, Michael; Northwestern University, Evanston, IL 60208
DDM 8857854 A004; 09/01/1988; $11,688; 0 mo.
Jointly Funded with MANUFACTURING MACHINES AND EQUIP $2,499

Research Initiation: Three-Dimensional Fracture Analysis of Rubber Composite Structures
Pidaparti, Ramana; Indiana University-Bloomington, Bloomington, IN 47405
MSS 9109683 A001; 08/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Engineering Research Center for Emerging Cardiovascular Technologies
Pilkington, Theo; Duke University, Durham, NC 27708
EEC 8622201 A010; 09/15/1987; $2,340,000; 12 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS $25,000

Presidential Young Investigator Award: Integrated Sensors Research (REU Supplement Included)
Polla, Dennis; University of Minnesota-Twin Cities, Minneapolis, MN 55415
ECS 8814651 A004; 07/01/1987; $67,500; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $1,250

Depth Reconstruction of Nominally-Smooth Surfaces from Shadowed Images - Creativity Award
Poor, Harold; Princeton University, Princeton, NJ 08544
EEC 9019951 A002; 09/01/1990; $35,000; 12 mo.

Continuous Czochralski Growth of Silicon Single Crystals
Prasad, Vishwanath; Koziol, Jurek; Columbia University, New York, NY 10027
DDM 9114593 A001; 09/01/1991; $9,250; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,313

Engineering Research Center for Engineering Design
Prinz, Friedrich; Carnegie-Mellon University, Pittsburgh, PA 15213
EEC 8943164 A004; 05/01/1989; $711,500; 12 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS $35,000

RUI: The Partition of Unstable Polytopes of Polynomials and Its Applications
Pujara, L.; Wright State University, Dayton, OH 45435
ECS 9112039 A001; 09/01/1991; $10,000; 0 mo.

Support for Under-Represented Groups in Engineering (SURGE): Graduate Engineering Education
Ransom, Preston; University of Illinois at Urbana-Champaign, Urbana, IL 61801
EEC 9116901 A001; 09/15/1991; $80,210; 12 mo.
Jointly Funded with NSF PLANNING AND EVALUATION $80,210
EEC 9116901 A002; 09/15/1991; $80,210; 0 mo.
Jointly Funded with PHYSICAL INFRASTRUCTURE DEVELP $80,210

Presidential Young Investigator Award: Engineering Design Database Research
Rasdorf, William; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
MSS 8451465 A009; 09/15/1985; $50,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $3,125

Graduate Engineering Education Fellowship for Women and Minorities
Reischman, Michael; Davis, Daniel; Luck, Sharon; Pennsylvania State Univ.-University Park, University Park, PA 16801
EEC 9116806 A001; 09/15/1991; $81,000; 12 mo.

Center for Analog/Digital Integrated Circuits (CADIC)
Ringo, John; Washington State University, Pullman, WA 99164-3140
EEC 8912616 A008; 06/01/1989; $145,000; 0 mo.

Educational and Research Infrastructure Development in Microelectromechanical Systems
Robbins, William; Erdman, Arthur; Polla, Dennis; Francis, Lorraine; University of Minnesota-Twin Cities, Minneapolis, MN 55415
EEC 9212159 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Study of the Dynamics of Highly Ionized Capillary Discharge Plasmas for XUV Lasers
Rocca, Jorge; Colorado State University, Fort Collins, CO 80523
ECS 9013372 A001; 02/15/1991; $9,950; 0 mo.

Enhancement and Destabilization of Flow Structure by Forced Excitation of Globally Unstable Flow Systems
Rockwell, Donald; Lehigh University, Bethlehem, PA 18015
CTS 8922095 A002; 07/01/1990; $5,000; 0 mo.

Evaluation of the Strength, Stiffness, and Ductility of Older Steel Frame Structures
Roeder, Charles; University of Washington, Seattle, WA 98195
BCS 9016714 A002; 10/01/1990; $30,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $3,750

Presidential Young Investigators Award
Rogers, Craig; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9157080 A001; 07/15/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Research Experiences for Undergraduates in Civil Engineering
Ross, Timothy; University of New Mexico, Albuquerque, NM 87131
EEC 9200117 A000; 05/01/1992; $39,923; 12 mo.

MRI: Finite Element Analysis of High Speed InP/no.53 GaO.47 as P-I-N Photodetector Structures
Russell, Jimmie; Ohio State University Research Foundation, Columbus, OH 43210
ECS 9111257 A000; 05/15/1992; $150,000; 36 mo.
Jointly Funded with COMPUTATIONAL ENGINEERING $18,750

Development of a Manufacturing Process to Fabricate Flexible High Critical Temperature Superconductor Wire
Samanta, Shyam; University of Nevada-Reno, Reno, NV 89557
DDM 9016787 A001; 03/01/1991; $4,000; 0 mo.

Fundamental Study on Ductile Fracture in Metal Forming
Samanta, Shyam; University of Nevada-Reno, Reno, NV 89557
DDM 9096203 A003; 04/01/1990; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Research Experience for Undergraduates in Combustion and Propulsion
Samuelsen, G. Scott; Dunn-Rankin, Derek; LaRue, John; University of California-Irvine, Irvine, CA 92717
EEC 9200218 A000; 05/01/1992; $50,000; 12 mo.

Automated Experimentation and Analysis for Robust Product Design
Sanchez, Susan; University of Arizona, Tucson, AZ 85721
DDM 9110573 A000; 01/01/1992; $59,996; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $15,000

Oxidation in Supercritical Water: Reaction Pathways and Kinetics (REU Supplement)
Savage, Phillip; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 9015738 A001; 12/15/1990; $10,000; 0 mo.

Feedback Control of the Nuclear Magnetization State (SGER Award)
Schiano, Jeffrey; Magin, Richard; University of Illinois Agricultural Experiment Station, Champaign, IL 61820
ECS 9121187 A001; 09/01/1991; $7,000; 0 mo.

Presidential Young Investigator Award: Physics and Engineering of Superconductor and Semiconducting Devices
Schlesinger, Tuviah; Carnegie-Mellon University, Pittsburgh, PA 15213
ECS 8958405 A004; 09/01/1989; $5,000; 0 mo.

Analysis and Design of Interconnects for Microelectronics Applications (Minority Research Initiation)
Schutt-Aine, Jose; University of Illinois at Urbana-Champaign, Urbana, IL 61801
ECS 8913116 A003; 12/15/1989; $79,712; 12 mo.

Research Initiation Award: Polymers for Selective Binding of Metal Ions
Scranton, Alec; Michigan State University, East Lansing, MI 48824
CTS 9110163 A001; 06/15/1991; $14,700; 0 mo.

Heat and Mass Transfer in a Paper Sheet During Drying Creativity Award
Seyed-Yagoobi, Jamal; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
EEC 9017556 A002; 09/01/1990; $35,000; 12 mo.

Engineering Research Center for Offshore Technology
Seymour, Richard; Lou, Jack; Stokoe, Kenneth; Texas A&M University Research Foundation, College Station, TX 77843
EEC 8721512 A010; 10/01/1988; $95,724; 12 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS and YOUNG SCHOLARS PROGRAM $55,362

An Evaluation of the Leachability of Heavy Metals from Fly Ash Liner Materials
Shackelford, Charles; Colorado State University, Fort Collins, CO 80523
MSS 8908201 A002; 09/01/1989; $10,000; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Undergraduate Summer Research in Bioengineering
Shalaby, Shalaby; Powers, Dennis; Black, Jonathan; Latour, Robert; Clemson University, Clemson, SC 29634
EEC 9200196 A000; 06/15/1992; $20,040; 12 mo.

Creativity in Engineering Award/Lisa R. DuBois
Sharp, Gunter; Al-Khayyal, Faiz; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
EEC 9019953 A002; 09/01/1990; $35,000; 12 mo.

A Study of Biaxial Strains at Notch Roots at High Temperature
Sharpe, William; Johns Hopkins University, Baltimore, MD 21218
MSS 9016817 A001; 04/01/1991; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

NSF/Industry Multi-University Material Handling Research Center
Shell, Richard; University of Cincinnati-Main Campus, Cincinnati, OH 45221
EEC 9113399 A001; 07/01/1991; $53,975; 12 mo.

Engineering Research Center for Plasma-Aided Manufacturing
Shohet, J.; Box, George; Cooper, Stuart; Hershkowitz, Noah; Kulcinski, Gerald; University of Wisconsin-Madison, Madison, WI 53706
EEC 8721545 A008; 10/01/1988; $35,000; 12 mo.

Study of Transient Phenomena in a Small-Scale Hazardous Waste Incinerator
Smith, Owen; Karagozian, Ann; Osher, Stanley; University of California-Los Angeles, Los Angeles, CA 90024
CTS 9021021 A001; 07/15/1991; $5,000; 0 mo.

Engineering Research Center for Advanced Combustion
Smoot, L. Douglas; Brigham Young University, Provo, UT 84602
EEC 8901595 A003; 05/01/1989; $725,925; 3 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS $20,000
EEC 8901595 A004; 05/01/1989; $1,611,575; 9 mo.

Unsteady Motion in Pipe Flow of Gas-Solid Suspensions and Modeling
Soo, Shao; University of Illinois at Urbana-Champaign, Urbana, IL 61801
CTS 9014914 A003; 09/01/1990; $9,000; 0 mo.

A Distributed Physically-Based Modeling Approach to Flash Flood Forecasting in Semi-Arid Regions
Sorooshian, Soroosh; University of Arizona, Tucson, AZ 85721
BCS 8920851 A002; 04/15/1990; $10,000; 0 mo.

Robust Feedback Control of Structures for Earthquake Hazard Mitigation
Spencer, Billie; Sain, Michael; University of Notre Dame, Notre Dame, IN 46556
BCS 9006781 A002; 11/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

SGER: Chaos in Electromagnetic Systems
Sridhar, Srinivas; Northeastern University, Boston, MA 02115
ECS 9114815 A001; 08/15/1991; $4,000; 0 mo.

Growth and Protein Expression of Eukaryotic Cells
Srienc, Friedrich; University of Minnesota-St. Paul, Minneapolis, MN 55455
BCS 9100385 A001; 07/01/1991; $10,000; 0 mo.

Long-Term Stability of Natural Slopes
Stark, Timothy; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9196074 A001; 01/01/1991; $5,000; 3 mo.

Enhancing the Development of Product Requirements
Stauffer, Larry; Morris, Linda; University of Idaho, Moscow, ID 83843
DDM 9114752 A001; 09/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Recruitment and Retention of Students and Faculty With Disabilities
Stern, Virginia; American Association for the Advancement of Science, Washington, DC 20005
EEC 9101122 A001; 01/15/1991; $158,570; 12 mo.

RIA: The Role of Lubricant Viscosity in the Frictional Behavior of the Magnetic Slider/Disk
Streator, Jeffrey; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9110469 A001; 07/15/1991; $4,606; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,151

The Influence of Local and Global Instability on the Development of Countercurrent Mixing Layers
Strykowski, Paul; University of Minnesota-Twin Cities, Minneapolis, MN 55415
CTS 9116532 A000; 03/15/1992; $155,036; 36 mo.

Research Initiation Award: Adaptive Control System Redesign for Improving Transient Performance
Sun, Jing; Wayne State University, Detroit, MI 48202
ECS 9110984 A001; 08/15/1991; $5,000; 0 mo.

Professional Values and Ethical Issues in the Graduate Education of Scientists and Engineers
Swazey, Judith; Acadia Institute, Bar Harbor, ME 04609
SBE 8913159 A003; 04/01/1990; $31,312; 12 mo.
Jointly Funded with ETHICS AND VALUES STUDIES and SOCIOLOGY $10,000

REU Site for Microelectronic Materials and Processing
Takoudis, Christos; Neudeck, Gerold; Kvam, Eric; Purdue University Research Foundation, West Lafayette, IN 47907
EEC 9200056 A000; 05/01/1992; $50,000; 12 mo.

Research Experiences for Undergraduates in Environmental Science and Engineering
Tansel, Berrin; Florida International University, Miami, FL 33199
EEC 9200166 A000; 05/15/1992; $55,000; 12 mo.

Engineering Faculty Internship: Development of Intelligent Gear Inspection System
Tansel, Ibrahim; Arch, Allan; Florida International University, Miami, FL 33199
DDM 9213770 A000; 07/15/1992; $25,000; 12 mo.

Investigation and Applications of Oscillatory Flow in Rigid Tubes
Taylor, Bruce; University of Akron, Akron, OH 44325
EEC 9154390 A000; 02/15/1992; $11,547; 12 mo.

Sensor-Based Control of Semiconductor Manufacturing Equipment
Terry, Fred; Elta, Michael; Khargonekar, Pramod; Grizzle, Jessy; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
EEC 9212316 A000; 09/01/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

Fundamental Investigation of Molybdenum Nitride and Carbide Catalysts: Minority Research Initiation Award
Thompson, Levi; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
CTS 8918107 A003; 01/15/1990; $90,000; 12 mo.
Jointly Funded with KINETICS AND CATALYSIS $2,500

Presidential Young Investigator Award: Design Optimization and Decision Analysis
Thurston, Deborah; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 8957420 A003; 09/01/1989; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

A Program for Underrepresented Scholars in Engineering
Torng, H.; Toueg, Sam; Phoenix, S.; Ruoff, Arthur; Cornell University - Endowed, Ithaca, NY 14853
EEC 9116878 A002; 09/15/1991; $40,500; 12 mo.
Jointly Funded with NSF PLANNING AND EVALUATION $40,500

Preliminary Research on the Safety of Steel Connections Using System Reliability Techniques
Trautner, Janice; University of Utah, Salt Lake City, UT 84112
MSS 9109024 A000; 12/15/1991; $18,000; 18 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $4,500

Research Initiaiton: Scheduling Complex Dynamic Job Shops
Uzsoy, Reha; Purdue University Research Foundation, West Lafayette, IN 47907
DDM 9107591 A001; 08/01/1991; $3,096; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $774

Research Experience for Undergraduate Students in Sensor Technologies
Van Der Spiegel, Jan; University of Pennsylvania, Philadelphia, PA 19104
EEC 9200138 A000; 05/01/1992; $93,021; 24 mo.

Laser-Driven Directional Solidification in High Tc Superconducting Polycrystalline Fibers
Varshney, Usha; American Research Corporation of Virginia, Radford, VA 24143-3406
III 9101565 A001; 08/01/1991; $10,000; 0 mo.

Graduate Engineering Education for Women
Ventrice, Marie; Tennessee Technological University, Cookeville, TN 38505
EEC 9018927 A001; 09/01/1990; $40,500; 12 mo.

Presidential Young Investigator Award: Computer Vision Inspection of Polygonal Profiles
Ventura, Jose; Pennsylvania State Univ.-University Park, University Park, PA 16801
DDM 9057066 A002; 08/15/1990; $6,250; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,563

Study of a Surface Acoustic Wave Microsensor for Gas Detection
Vetelino, John; Dwyer, Daniel; Grunze, Michael; University of Maine, Orono, ME 04469-0114
ECS 9019551 A001; 03/15/1991; $10,000; 0 mo.

Undergraduate Research Participation in Electrical Engineering
Vetelino, John; University of Maine, Orono, ME 04469-0114
EEC 9200039 A000; 05/01/1992; $54,780; 12 mo.

Minority Engineering Doctorate Initiative
Viessman, Warren; Earle, Jon; University of Florida, Gainesville, FL 32611
EEC 9116648 A002; 09/15/1991; $41,500; 12 mo.

Analytical Study and Experimental Verification of a Coupled Theory of Mixtures and Micropolar Continua for Geomechanical Application
Voyiadjis, George; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
MSS 9018249 A003; 02/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Lossless Acoustooptic Permutation and Interconnection Network
Wagner, Kelvin; Mickelson, Alan; Weverka, Robert; University of Colorado at Boulder, Boulder, CO 80309
ECS 9015752 A003; 09/01/1990; $11,000; 0 mo.
Jointly Funded with OPTICAL COMMUNICATIONS INITIAT $1,250

Research Experiences for Undergraduates: Porous Media Transport and Bio-Kinetics in Environmental Engineering
Walker, Larry; Steenhuis, T.; Cornell University - State, Ithaca, NY 14853
EEC 9200350 A000; 05/01/1992; $50,000; 12 mo.

A Study of Behavior and Design of Reinforced Concrete Shear Walls with Unsymmetrical Cross-Section
Wallace, John; Clarkson University, Potsdam, NY 13676
BCS 9112962 A001; 07/01/1991; $15,000; 0 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $2,500

Rapid In-Site Remediation of Hazardous Waste Sites Using Surfactant Biotechnology - Creativity Award
Walters, James; The University of Alabama, Tuscaloosa, AL 35487-2856
EEC 9106202 A001; 03/01/1991; $30,000; 12 mo.

Engineering Research Center for Biotechnology Process
Wang, Daniel; Massachusetts Institute of Technology, Cambridge, MA 02139
EEC 8803014 A011; 05/01/1988; $45,000; 12 mo.

Engineering Faculty Internship: Intelligent Machine Tool Monitoring: A Neural Network Approach
Wang, Hsu-Pin; Chen, F. Frank; University of Iowa, Iowa City, IA 52242
DDM 9113770 A001; 08/01/1991; $3,762; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $941

Graduate Engineering Education at the City College for Women, Minorities, and/or Persons with Disabilities: Project FORCE
Watkins, Charles; CUNY-City College, New York, NY 10031
EEC 9019450 A002; 09/01/1990; $54,000; 12 mo.

Heuristics for Stochastic Scheduling and the Control of Queueing Networks
Weiss, Gideon; Georgia Tech Research Corporation - GA Tech Research Institute, Atlanta, GA 30332
DDM 8914863 A003; 03/01/1990; $105,894; 12 mo.
Jointly Funded with PRODUCTION SYSTEMS $2,700

Antenna-Coupled Pyroelectric Detectors for Far-Infrared Radiation Detection (REU SUPPLEMENT)
Wentworth, S.; Auburn University, Auburn, AL 36849
ECS 9108882 A001; 08/15/1991; $4,472; 0 mo.

Graduate Engineering for Women, Minorities, and Persons with Disabilities at Georgia Tech
Wepfer, William; Heck, Bonnie S.; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
EEC 9018632 A001; 09/15/1990; $108,000; 12 mo.

A Workshop: Assessment and Evaluation of the Program for GEE for Women, Minorities, and/or Persons with Disabilities, April 1992
Wepfer, William; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
EEC 9204048 A000; 04/15/1992; $60,562; 12 mo.

Proposal to Design a Program in Engineering Ethics for Doctoral Engineering Students
Whitbeck, Caroline; Marks, David; Massachusetts Institute of Technology, Cambridge, MA 02139
SBE 9124001 A000; 04/15/1992; $51,970; 12 mo.

Research Initiation Award: Protein Separation Utilizing Utilizing Temperature-Sensitive Mecroemulsions
Wiencek, John; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
CTS 9110757 A001; 07/01/1991; $10,000; 0 mo.

Effects of Rapid, High-Dose, Elevated Temperature in Ion Implantation on the Tribology and Microstructure of Ferrous Materials
Williamson, Don; Wilbur, Paul; Colorado School of Mines, Golden, CO 80401
MSS 9116935 A001; 07/01/1991; $4,000; 0 mo.

Graduate Engineering Education for Women, Minorities, and/or Persons with Disabilities
Wolde-Tinsae, Amde; University of Maryland-College Park, College Park, MD 20742
EEC 9018367 A002; 09/01/1990; $94,500; 12 mo.
Jointly Funded with NSF PLANNING AND EVALUATION $94,500

Identification and Active Control of Structures Under Earthquake Loadings
Yang, Jackson; Amini, Farshad; Qi, Gui-Zhong; University of Maryland-College Park, College Park, MD 20742
BCS 9114047 A001; 06/01/1991; $14,400; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Chemical Sensors for Advanced Process Analysis
Yee, Sinclair; Carey, W.; University of Washington, Seattle, WA 98195
EEC 9212314 A000; 09/15/1992; $390,000; 36 mo.
Jointly Funded with ENGINEERING EDUCATION and PHYSICAL INFRASTRUCTURE DEVELP $290,000

High Voltage Conduction and Breakdown Phenomena in Dielectrics
Zahn, Markus; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 8913605 A003; 12/15/1989; $10,000; 0 mo.

A Novel Optoelectronic Thyristor for Picosecond High Power Switching Applications (REU Supplement)
Zhao, Jian; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
ECS 9009370 A001; 07/01/1990; $10,000; 0 mo.

SGER: Experimental Study of Four-Wave Mixing InGaAs/GaAs Multiple Quantum Wells with Application to Optical Switching Devices and Solition Generation
Zhao, Yang; Wayne State University, Detroit, MI 48202
ECS 9107774 A001; 08/15/1991; $13,250; 0 mo.

Flow Channeling in Soft Clays
Znidarcic, Dobroslav; University of Colorado at Boulder, Boulder, CO 80309
MSS 9102223 A001; 07/15/1991; $8,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,000

Behavior of Axially Loaded Pultruded Fiber Reinforced Composite Columns
Zureick, Abdul-Hamid; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 8909140 A002; 06/01/1989; $6,602; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,650

Industry/University Cooperative Research Centers

Industry/University Cooperative Research Center for Communications and Signal Processing
Abbott, George; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
EEC 8212696 A012; 07/01/1982; $20,000; 0 mo.
Jointly Funded with ARMY $20,000
EEC 8212696 A013; 07/01/1982; $50,000; 0 mo.
Jointly Funded with ARMY-MPMC CONSORTIUM $50,000
EEC 8212696 A014; 07/01/1982; $50,000; 0 mo.
Jointly Funded with ARMY-CCSP $50,000
EEC 8212696 A015; 07/01/1982; $58,000; 12 mo.

State/University Cooperative Research Center for Intelligent Information Retrieval
Adrion, W. Richards; Lehnert, Wendy; Croft, W.; University of Massachusetts-Amherst, Amherst, MA 01003
EEC 9209623 A000; 07/01/1992; $300,000; 12 mo.
Jointly Funded with DATABASE AND EXPERT SYSTEMS $50,000

Industry/University Cooperative Research Center Conference for Exploiting Innovation: Marketing to the World
Allentuch, Arnold; The Foundation at NJIT, Newark, NJ 07102
EEC 9208357 A000; 06/01/1992; $79,568; 9 mo.

Industry/University Cooperative Research Center for Biological Surface Science
Baier, Robert; SUNY at Buffalo, Amherst, NY 14228
EEC 8817192 A004; 08/15/1988; $80,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 8817192 A005; 08/15/1988; $100,000; 12 mo.
Jointly Funded with INTERNAT BIOLOGICAL DIVERSITY $100,000

State/Industry/University Cooperative Research Center for Nonwovens
Batra, Subhash; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
EEC 9108854 A002; 09/01/1991; $250,000; 12 mo.

Industry/University Cooperative Research Center for Innovation Management Studies
Bean, Alden; Lehigh University, Bethlehem, PA 18015
EEC 8507642 A008; 06/01/1985; $78,000; 24 mo.

Industry/University Cooperative Research Center for Manufacturing and Automation
Bekey, George; Melkanoff, Michel; University of Southern California, Los Angeles, CA 90089
EEC 8717322 A010; 09/01/1987; $135,000; 0 mo.

Industry/University Cooperative Research Center for Cell Regulation
Boyan, Barbara; University of Texas Health Science Center-San Antonio, San Antonio, TX 78284
EEC 8515657 A009; 09/01/1985; $90,000; 12 mo.
Jointly Funded with AIR FORCE and HUMAN RESOURCES DEVELOPMENT $90,000

State/Industry/University Cooperative Research Center for The Enhancement of the Biology/Biomaterials Interface
Boyan, Barbara; University of Texas Health Science Center-San Antonio, San Antonio, TX 78284
EEC 9209612 A000; 07/01/1992; $300,000; 12 mo.
EEC 9209612 A001; 07/01/1992; $100,000; 48 mo.
Jointly Funded with AIR FORCE-IUCRC $100,000

Industry/University Cooperative Research Center for Advanced Air Conditioning and Refrigeration Technology
Bullard, Clark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
EEC 9004008 A005; 04/01/1990; $40,000; 12 mo.
Jointly Funded with EPA $40,000
EEC 9004008 A006; 04/01/1990; $95,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and ARMY-ANNUAL SPONSORSHIP FEE $45,000
EEC 9004008 A007; 04/01/1990; $95,000; 0 mo.
Jointly Funded with EPA $40,000

Industry/University Cooperative Research Center for Microwave and Millimeter Wave Computer-Aided Design
Chang, David; University of Colorado at Boulder, Boulder, CO 80309
EEC 8722832 A007; 03/01/1988; $125,000; 12 mo.
EEC 8722832 A008; 03/01/1988; $50,000; 0 mo.
Jointly Funded with ARMY $50,000

Industry/University Cooperative Research Center for Parallel and Distributive Intelligence Systems
Chang, Shi-Kuo; University of Pittsburgh, Pittsburgh, PA 15260
EEC 8810225 A004; 08/01/1988; $45,000; 12 mo.

Industry/University Cooperative Research Center Self-Sufficient Partnership for Research
Cheng, Herbert; Northwestern University, Evanston, IL 60208
EEC 9214605 A000; 08/01/1992; $55,000; 24 mo.

Industry/University Cooperative Research Center for Integrated Pest Management
Coble, Harold; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
EEC 9116415 A001; 08/01/1991; $97,333; 12 mo.

Industry/University Cooperative Research Center for Software Engineering
DeMillo, Richard; Purdue University Research Foundation, West Lafayette, IN 47907
EEC 8913133 A007; 06/15/1989; $35,000; 0 mo.
Jointly Funded with ARMY $35,000
EEC 8913133 A008; 06/15/1989; $20,000; 0 mo.

Young Scholars Program - Research in Hazardous Toxic Substance Management
Deutschman, Harold; The Foundation at NJIT, Newark, NJ 07102
ESI 9054982 A001; 03/01/1991; $31,478; 12 mo.

Industry/University Cooperative Research Center for Microwave Engineering
DiGiacomo, Joseph; Villanova University, Villanova, PA 19085
EEC 9201568 A000; 02/15/1992; $50,000; 12 mo.

The Industry/University Cooperative Research Center for Dielectric Studies
Dougherty, Joseph; Cross, Leslie; Newnham, Robert; Schulze, Walter; Bhalla, Amar; Pennsylvania State Univ.-University Park, University Park, PA 16801
EEC 9048282 A002; 09/01/1990; $40,000; 12 mo.

Young Scholars Project
Duggan, Claire; Leventman, Paula; Northeastern University, Boston, MA 02115
ESI 9055045 A001; 03/01/1991; $58,010; 12 mo.

Industry/University Cooperative Research Center for Polymer Interfaces
El-Aasser, Mohamed; Lehigh University, Bethlehem, PA 18015
EEC 9117064 A001; 07/15/1991; $50,000; 12 mo.

Industry/University Cooperative Research Center for High-Speed Image/Signal Processing (CHIP)
Ferrari, Leonard; University of California-Irvine, Irvine, CA 92717
EEC 9116728 A003; 08/01/1991; $100,000; 12 mo.

Industry/University Cooperative Research Center for Iron and Steelmaking Research
Fruehan, Richard; Carnegie-Mellon University, Pittsburgh, PA 15213
EEC 8421112 A008; 05/01/1985; $45,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Industry/University Cooperative Research Center for Chemical Process and Modeling and Control
Georgakis, Christos; Luyben, William; Lehigh University, Bethlehem, PA 18015
EEC 8511162 A008; 07/15/1985; $38,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

State/University Cooperative Research Center for Electronic Imaging: Imaging in the Information Age
George, Nicholas; University of Rochester, Rochester, NY 14627
EEC 9209615 A000; 09/01/1992; $150,000; 48 mo.

Industry/University Cooperative Research Center for Wireless Information Networks
Goodman, David; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
EEC 9111456 A001; 05/01/1991; $55,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Industry/University Cooperative Research Center for Building Performance and Diagnostics
Hartkopf, Volker; Carnegie-Mellon University, Pittsburgh, PA 15213
EEC 9200309 A000; 04/01/1992; $75,000; 12 mo.
Jointly Funded with LARGE STRUCTURAL AND BLDG SYSTMS $37,500
EEC 9200309 A001; 04/01/1992; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Industry/University Cooperative Research Center for Simulation and Design Optimization of Mechanical Systems
Haug, Edward; University of Iowa, Iowa City, IA 52242
EEC 8715397 A016; 09/01/1987; $269,036; 0 mo.
Jointly Funded with NASA-FTS $230,000
EEC 8715397 A017; 09/01/1987; $65,000; 0 mo.
Jointly Funded with AIR FORCE-SIM AND DESIGN OPTIMIZ $40,000
EEC 8715397 A018; 09/01/1987; $130,000; 0 mo.
Jointly Funded with NASA and ARMY $130,000

Industry/University Cooperative Research Center for Tie Project with the University of California at Berkeley for a Substructure Method for Dynamic Simulation of Micromechanical Systems with Geometric Nonlinearities
Haug, Edward; University of Iowa, Iowa City, IA 52242
EEC 9220301 A000; 09/01/1992; $50,000; 24 mo.

Industry/University Cooperative Research Center for Pilot Projects in Simulation-Based Concurrent Engineering of Military Vehicles and Space Flight Systems
Haug, Edward; Choi, Kyung; University of Iowa, Iowa City, IA 52242
EEC 9222784 A000; 09/15/1992; $2,244,000; 12 mo.
Jointly Funded with DEFENSE and DARPA-SOLDIER IN THE LOOP VEH $1,888,000

State/Industry University Cooperative Research Center for Low-Cost, High-Speed Polymer Composites Processing
Hawley, Martin; Michigan State University, East Lansing, MI 48824
EEC 9108846 A001; 09/01/1991; $250,000; 12 mo.

Industry/University Cooperative Research Center for Applied Polymer Research
Hiltner, Anne; Case Western Reserve University, Cleveland, OH 44106
EEC 8116103 A011; 06/15/1981; $35,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Industry/University Cooperative Research Center for Grinding
Howes, Trevor; University of Connecticut, Storrs, CT 06268
EEC 9000925 A003; 01/15/1990; $80,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and MANUFACTURING MACHINES AND EQUIP $30,000

State/Industry University Cooperative Research Center for Molecular and Microstructure of Composites
Ishida, Hatsuo; Case Western Reserve University, Cleveland, OH 44106
EEC 9108700 A001; 09/01/1991; $250,000; 12 mo.

Industry/University Cooperative Research Center for Coatings Research
Jones, Frank; Eastern Michigan University, Ypsilanti, MI 48197
EEC 9006914 A003; 04/15/1990; $100,000; 12 mo.

Center for UMass-Industry Research on Polymers - Joint Research Project with Liberal Arts College Faculty
Kantor, Simon; Tirrell, David; University of Massachusetts-Amherst, Amherst, MA 01003
EEC 8615271 A013; 08/15/1986; $146,000; 12 mo.
EEC 8615271 A014; 08/15/1986; $31,000; 0 mo.
Jointly Funded with ARMY and HUMAN RESOURCES DEVELOPMENT $31,000

Industry/University Cooperative Research Center for UMass-Industry Research on Polymers (CUMIRP) - Sabbatical of Mount Holyoke College Faculty
Kantor, Simon; Lenz, Robert; University of Massachusetts-Amherst, Amherst, MA 01003
EEC 9218410 A000; 07/15/1992; $64,000; 24 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $28,800

Industry/University Cooperative Research Center for Fundamental Investigations in Microtribology
Keer, Leon; Northwestern University, Evanston, IL 60208
EEC 9216257 A000; 06/01/1992; $50,000; 24 mo.
Jointly Funded with SURFACE ENGINEERING AND TRIBOLOGY $5,000

Industry/University Cooperative Research Center for Fundamental Investigations in Microtribology
Komvopoulos, Kyriakos; University of California-Berkeley, Berkeley, CA 94720
EEC 9215239 A000; 05/01/1992; $50,000; 24 mo.

Industry/University Cooperative Research Center for Process Analytical Chemistry
Kowalski, Bruce; University of Washington, Seattle, WA 98195
EEC 8415075 A012; 09/01/1984; $35,000; 12 mo.
Jointly Funded with EPA $35,000
EEC 8415075 A013; 09/01/1984; $63,512; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and AIR FORCE-TRACE METAL ANALYSIS $28,512
EEC 8415075 A014; 09/01/1984; $35,000; 12 mo.
Jointly Funded with EPA $35,000
EEC 8415075 A015; 09/01/1984; $40,000; 12 mo.
Jointly Funded with EPA $40,000

Industry/University Cooperative Research Center for Advanced Steel Processing and Products Research
Krauss, George; Matlock, David; Colorado School of Mines, Golden, CO 80401
EEC 9147146 A001; 06/15/1991; $47,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and ARMY $47,000
EEC 9147146 A002; 06/15/1991; $56,000; 12 mo.
EEC 9147146 A003; 06/15/1991; $80,000; 12 mo.
Jointly Funded with ARMY $80,000

State Industry/University Cooperative Research Center for the Integrated Electronics Engineering Center Performing Research in Electronics Packaging
Kroger, Harry; Research Foundation of State of New York (SUNY), Albany, NY 12201
EEC 9108850 A001; 09/01/1991; $150,000; 0 mo.
EEC 9108850 A002; 09/01/1991; $250,000; 12 mo.

Industry/University Cooperative Research Center for Ultra-High Speed Integrated Circuits and Systems (ICAS)
Ku, Walter; Milstein, Laurence; University of California-San Diego, San Diego, CA 92093
EEC 8916669 A005; 09/15/1989; $230,000; 12 mo.
Jointly Funded with NAVY-UCSD ULTRA HIGH SPEED ICA $65,000
EEC 8916669 A006; 09/15/1989; $100,000; 0 mo.
Jointly Funded with NASA/GODDARD - CIRCUIT TECH and NAVY $100,000
EEC 8916669 A007; 09/15/1989; $50,000; 0 mo.
Jointly Funded with NAVY $50,000

State/Industry University Cooperative Research Center for Capsule Pipeline Research
Liu, Henry; University of Missouri-Columbia, Columbia, MO 65211
EEC 9108841 A001; 09/01/1991; $200,000; 12 mo.

Industry/University Cooperative Research Center for Thin Film and Interface Research (CTFIR)
Loferski, Joseph; Brown University, Providence, RI 02912
EEC 8813548 A005; 02/01/1989; $50,000; 0 mo.
EEC 8813548 A006; 02/01/1989; $5,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Industry/University Cooperative Research Center for Hazardous and Toxic Substances
Magee, Richard; The Foundation at NJIT, Newark, NJ 07102
EEC 8416180 A015; 09/01/1984; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 8416180 A016; 09/01/1984; $90,000; 12 mo.
Jointly Funded with ARMY and ARMY-PBMA CO-OP CENTER MEMBER $60,000

Industry/University Cooperative Research Center for Collaborative Research on the Development and Demonstration of Hazardous Substance Management Technologies
Magee, Richard; Watts, Daniel; The Foundation at NJIT, Newark, NJ 07102
EEC 9215864 A000; 10/01/1992; $125,000; 12 mo.
Jointly Funded with ENERGY $125,000

Industry/University Cooperative Research Center: Support for an Evaluator
Magee, Richard; The Foundation at NJIT, Newark, NJ 07102
EEC 9220302 A000; 07/15/1992; $24,000; 36 mo.

Creation of an Industry/University Cooperative Research Centers' Center Director's Handbook
Magee, Richard; The Foundation at NJIT, Newark, NJ 07102
EEC 9222356 A000; 09/01/1992; $68,000; 18 mo.

Environmental Issues in the Science Classroom Management of Hazardous Substances
Magee, Richard; The Foundation at NJIT, Newark, NJ 07102
EEC 9247006 A000; 06/01/1992; $104,165; 12 mo.
Jointly Funded with TEACHER ENHANCEMENT PROGRAM and HUMAN RESOURCES DEVELOPMENT $98,956

Industry/University Cooperative Research Center for Nanostructural Materials Research
Marshall, James; University of North Texas, Denton, TX 76203
EEC 9005869 A002; 04/01/1990; $50,000; 0 mo.

NSF Industry/Multi-University Materials Handling Research Center
Mazouz, A. Kader; Florida Atlantic University, Boca Raton, FL 33431
EEC 9114084 A001; 06/01/1991; $50,000; 12 mo.

Industry/University Cooperative Research Center for Information Management Research
McCracken, W. Michael; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
EEC 8904815 A006; 07/01/1989; $150,000; 0 mo.
Jointly Funded with ARMY $150,000
EEC 8904815 A007; 07/01/1989; $105,000; 12 mo.

International University-Industry Cooperative Research Program Between the Center for Ceramic Research at Rutgers University and Several Swedish Institutions
McLaren, Malcolm; Niesz, Dale; Rutgers University-New Brunswick, New Brunswick, NJ 08903
INT 8811014 A005; 07/01/1988; $8,000; 0 mo.

Industry/University Cooperative Research Center for Ceramic Research
McLaren, Malcolm; Rutgers University-New Brunswick, New Brunswick, NJ 08903
EEC 9047182 A004; 09/01/1990; $40,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 9047182 A005; 09/01/1990; $10,000; 0 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $10,000

Industry/University Cooperative Research Center for Integrated Sensors
Muller, Richard; White, Richard; University of California-Berkeley, Berkeley, CA 94720
EEC 8614900 A008; 09/01/1986; $8,000; 0 mo.
EEC 8614900 A009; 09/01/1986; $37,293; 0 mo.
Jointly Funded with ENGINEERING EDUCATION and MICROELECTROMECHANICAL RESEARC $10,500

1992 Solid-State Sensors and Actuators Workshop--Participant Support - Hilton Head, South Carolina, June 1992
Muller, Richard; University of California-Berkeley, Berkeley, CA 94720
ECS 9208793 A000; 05/01/1992; $18,000; 12 mo.

Industry/University Cooperative Research Center for Measurement and Control
Muly, Emil; University of Tennessee-Knoxville, Knoxville, TN 37996-0140
EEC 8611139 A009; 07/15/1986; $48,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Industry/University Cooperative Research Center for for Separations Using Thin Films
Noble, Richard; University of Colorado at Boulder, Boulder, CO 80309
EEC 9103095 A001; 03/15/1991; $65,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and SEPAR AND PURIFICATION PROCESSES $15,000
EEC 9103095 A002; 03/15/1991; $37,500; 0 mo.
Jointly Funded with EPA $37,500

NSF Self-Sufficient Partnership for Research with University of Arizona Center for Microcontamination Control
O'Hanlon, John; University of Arizona, Tucson, AZ 85721
EEC 9022924 A002; 09/01/1990; $43,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Industry/University Cooperative Research Center for Material Handling Research
Parker, Sandra; University of Arkansas-Main Campus, Fayetteville, AR 72701
EEC 9111573 A001; 06/15/1991; $40,000; 0 mo.
Jointly Funded with ARMY $40,000
EEC 9111573 A002; 06/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and MANUFACTURING MACHINES AND EQUIP $5,000
EEC 9111573 A003; 06/15/1991; $90,000; 12 mo.
Jointly Funded with ARMY $40,000

State Industry/University Cooperative Research Center CALCE Center for Electronic Packaging
Pecht, Michael; University of Maryland-College Park, College Park, MD 20742
EEC 9108844 A001; 09/01/1991; $111,000; 12 mo.
Jointly Funded with NAVY-IUCRC FOR ELEC PACKAGING and NAVY $51,000
EEC 9108844 A002; 09/01/1991; $725,000; 12 mo.
Jointly Funded with ARMY $50,000
EEC 9108844 A003; 09/01/1991; $50,000; 12 mo.
Jointly Funded with NAVAL SURFACE WARFARE CENTER $50,000

Industry/University Cooperative Research Center for Material Handling
Pence, Ira; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
EEC 9048797 A004; 09/01/1990; $150,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and ARMY-MAT HANDLING RES CTR $45,000

Industry/University Cooperative Research Center for Energetic Materials
Persson, Per-Anders; Williams, Pharis; New Mexico Institute of Mining and Technology, Socorro, NM 87801
EEC 8614899 A016; 09/01/1986; $140,000; 0 mo.
Jointly Funded with ARMY-ENERGETIC MATERIALS and AIR FORCE-ENERGETIC MATERIALS $60,000

Industry/University Cooperative Research Center for Energetic Materials
Persson, Per-Anders; Oxley, Jimmie; New Mexico Institute of Mining and Technology, Socorro, NM 87801
EEC 9222357 A000; 09/01/1992; $334,700; 12 mo.
Jointly Funded with ARMY and ARMY-HAN-BASED LIQUID PROPELLA $246,700
EEC 9222357 A001; 09/01/1992; $25,000; 0 mo.
Jointly Funded with ARMY $25,000

Industry/University Cooperative Research Center Self-Sufficient Partnership for Research at the Optical Circuitry Cooperative
Peyghambarian, Nasser; University of Arizona, Tucson, AZ 85721
EEC 9208001 A000; 09/15/1992; $105,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and AIR FORCE-OPTOELECTRONIC TECH $55,000

Industry/University Cooperative Research Center for Glass Research
Pye, L. David; Alfred University, Alfred, NY 14802
EEC 8610534 A009; 06/01/1986; $71,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Science and Math Enhancement (SAME)
Pye, L. David; Baldwin, Ann McCoppin; Alfred University, Alfred, NY 14802
ESI 9055053 A001; 02/15/1991; $37,573; 12 mo.

An International Collaboration Between the Glass Industries of Germany and the U.S.
Pye, L. David; Alfred University, Alfred, NY 14802
EEC 9221606 A000; 09/15/1992; $55,000; 12 mo.
Jointly Funded with INTERNATIONAL INFO AND ANALYSIS $27,500

Industry/University Cooperative Research Center for Web Handling
Reid, Karl; Oklahoma State University, Stillwater, OK 74078
EEC 9023068 A002; 09/01/1990; $72,610; 12 mo.

Center for Analog/Digital Integrated Circuits (CADIC)
Ringo, John; Washington State University, Pullman, WA 99164-3140
EEC 8912616 A008; 06/01/1989; $145,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

State/University Cooperative Research Center for Rock Mechanics
Roegiers, Jean-Claude; University of Oklahoma-Norman Campus, Norman, OK 73019
EEC 9209619 A000; 07/01/1992; $300,000; 12 mo.

Industry/University Cooperative Research Center for Plastics Recycling Institute (PRI)
Saba, Raymond; McLaren, Malcolm; Rutgers University-New Brunswick, New Brunswick, NJ 08903
EEC 9147081 A002; 06/15/1991; $55,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Evaluation Activities for University of Iowa Industry/University Cooperative Research Center
Scholz, Paul; University of Iowa, Iowa City, IA 52242
EEC 9221607 A000; 09/01/1992; $8,000; 12 mo.

Industry/University Cooperative Research Center for a Cooperative Partnership Initiative Between CAPPS and the Institut Pertanian Bogor
Schwartz, Steven; North Carolina State University at Raleigh, Raleigh, NC 276958208
EEC 8716900 A008; 08/01/1987; $100,000; 12 mo.
Jointly Funded with INTERNAT BIOLOGICAL DIVERSITY $100,000

Industry/University Cooperative Research Center Evaluator at CPAC and CADAR (Center for Analog/Digital Applications Research)
Scott, Craig; Individual Award, Washington, DC 20550
EEC 9146934 A001; 05/15/1991; $28,000; 24 mo.

NSF/Industry Multi-University Material Handling Research Center
Shell, Richard; University of Cincinnati-Main Campus, Cincinnati, OH 45221
EEC 9113399 A001; 07/01/1991; $53,975; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,975

Industry/University Cooperative Research Center for Electromagnetics Research
Silevitch, Michael; Northeastern University, Boston, MA 02115
EEC 8513971 A016; 09/01/1985; $106,005; 0 mo.
Jointly Funded with AIR FORCE-TC SUPERCONDUCTS and DEFENSE-INTELLIGENT RISK ASSES $106,005
EEC 8513971 A017; 09/01/1985; $223,000; 12 mo.
Jointly Funded with AIR FORCE-ELECTROMAGNETICS and AIR FORCE-RADAR CROSS SECTION $110,000
EEC 8513971 A018; 09/01/1985; $190,000; 0 mo.
Jointly Funded with AIR FORCE-ELECTROMAGNETICS and NAVY-ELECTROMAGNETICS RESEARCH $80,000

Industry/University Cooperative Research Center for the Enhancement of Science and Mathematics Education (CESAME)
Silevitch, Michael; Northeastern University, Boston, MA 02115
EEC 9203420 A000; 03/15/1992; $100,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and TEACHER ENHANCEMENT PROGRAM $75,000
EEC 9203420 A001; 03/15/1992; $15,000; 0 mo.
Jointly Funded with ARMY-CESAME PROGRAM $15,000

Industry/University Cooperative Research Center for Micro-Engineered Ceramics
Smith, Douglas; University of New Mexico, Albuquerque, NM 87131
EEC 8803152 A008; 03/01/1988; $155,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 8803152 A009; 03/01/1988; $10,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

An Industry/University Cooperative Research Center for Advanced Electron Devices and Systems
Sobal, Harold; University of Texas at Arlington, Arlington, TX 76019
EEC 9244990 A000; 02/01/1992; $16,000; 24 mo.

Industry/University Cooperative Research Center for Design and Test of Mixed-Signal Systems
Soma, Mani; University of Washington, Seattle, WA 98195
EEC 9214870 A000; 06/01/1992; $25,266; 6 mo.

Industry/University Cooperative Research Center Self-Sustaining Partnership for Research
Swartzel, Kenneth; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
EEC 9218812 A000; 09/15/1992; $48,000; 12 mo.
EEC 9218812 A001; 09/15/1992; $20,000; 0 mo.
Jointly Funded with FOOD AND DRUG ADMINISTRATION $20,000

Industry/University Center for Nondestructive Evaluation
Thompson, Donald; Iowa State University, Ames, IA 50011
EEC 8515656 A010; 09/01/1985; $116,774; 0 mo.
Jointly Funded with ENGINEERING EDUCATION $116,774

Industry/University Cooperative Research Center Self Sufficient Partnership for Research in the Center for Nondestructive Evaluation
Thompson, Donald; Iowa State University, Ames, IA 50011
EEC 9120016 A001; 08/01/1991; $20,000; 0 mo.
Jointly Funded with NAVY $20,000
EEC 9120016 A002; 08/01/1991; $35,000; 12 mo.

Industry/University Cooperative Research Center for Magnetic Properties of Cretaceous/Tertiary Glass, Tektites and Nuclear Waste Glass
Thorpe, Arthur; Howard University, Washington, DC 20059
EEC 9222622 A000; 09/15/1992; $50,000; 24 mo.

Industry/University Cooperative Research Center for Ocean Technology Center Planning Meeting
Tyce, Robert; University of Rhode Island Graduate School of Oceanography, Narragansett, RI 02882
EEC 9222523 A000; 09/01/1992; $9,892; 4 mo.

State/IURCRC for Technology Transfer from a Federal Laboratory
Walter, Mary; University of Texas Health Science Center-San Antonio, San Antonio, TX 78284
EEC 9223689 A001; 09/01/1992; $100,000; 12 mo.
Jointly Funded with AIR FORCE-IUCRC $100,000

Industry/University Cooperative Research Center Video Production, Cataloging and Evaluation: IUCRC Showcase
White, Richard; University of California-Berkeley, Berkeley, CA 94720
EEC 9222490 A000; 09/01/1992; $101,365; 12 mo.

Industry/University Cooperative Research on Mechanical and Optical Coordinate Measuring Machines (CMMs and OCMMs)
Wu, S.; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
EEC 9015282 A002; 05/15/1990; $50,000; 12 mo.

Industry/University Cooperative Research Center for Software Engineering
Yau, Stephen; University of Florida, Gainesville, FL 32611
EEC 9146148 A002; 07/01/1991; $30,000; 12 mo.
Jointly Funded with ARMY $30,000
EEC 9146148 A003; 07/01/1991; $30,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000
EEC 9146148 A004; 07/01/1991; $13,000; 12 mo.
Jointly Funded with ARMY $13,000

Planning Conference - Research Partnership; Tucson, Arizona, October-November 1991
Zuckerman, Howard; Arizona State University, Tempe, AZ 85287
EEC 9200590 A000; 10/15/1991; $9,840; 12 mo.

Industry/University Cooperative Research Center for Health Management
Zuckerman, Howard; Arizona State University, Tempe, AZ 85287
EEC 9215267 A000; 07/15/1992; $50,000; 12 mo.

SPECIAL PROGRAMS

Board of Engineering Education
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
EEC 9109302 A002; 06/15/1991; $50,000; 0 mo.
Jointly Funded with NASA-BD ON ENG EDUC OF NATL RE $50,000

INDUSTRIAL INNOVATION AND INTERFACE

Management of Technology Program

Cross-Directorate Programs

ROW: Robust Adaptive Control
Annaswamy, Anuradha; Massachusetts Institute of Technology, Cambridge, MA 02139
EID 9296073 A000; 12/18/1991; $18,200; 9 mo.

Special Programs

Contractor Services for National SBIR Conferences
Speser, David; Foresight Science and Technology Inc., Port Townsend, WA 98368
III 9117261 A006; 06/15/1991; $58,000; 12 mo.
Jointly Funded with ARMY-NATL SBIR CONFERENCE and DARPA-CAAS $30,000

Small Business Innovation Research Program

Small Business Innovation Program

NSF/STW Workshop in The Hague, Netherlands
Olseth, Dale; Bio-Metric Systems Inc., Eden Prairie, MN 55344
III 9211816 A000; 04/01/1992; $3,758; 6 mo.

Support Services for Research Information Processing and Dissemination
Schwartz, Marlene; Capital Systems Group Inc., Rockville, MD 20850
SBE 9208877 A000; 01/15/1992; $351,853; 12 mo.
Jointly Funded with COOPERATIVE SCIENCE, OTHER $110,751

Contractor Services for National SBIR Conferences
Speser, David; Foresight Science and Technology Inc., Port Townsend, WA 98368
III 9117261 A003; 06/15/1991; $11,221; 0 mo.
III 9117261 A006; 06/15/1991; $58,000; 12 mo.
Jointly Funded with ARMY-NATL SBIR CONFERENCE and DARPA-CAAS $30,000
III 9117261 A007; 06/15/1991; $73,816; 0 mo.

STW Workshop in The Hague
Thalberg, Beverly; Scientific Computing Associates Inc., New Haven, CT 06510
III 9211815 A000; 03/15/1992; $4,345; 1 mo.

Small Business Phase I

Beta-Barium Borate as a Pockels Cell for Excimer Lasers
Adhav, Ratan; Quantum Technology Inc., Lake Mary, FL 32746-6212
III 9160509 A000; 01/15/1992; $49,998; 6 mo.

Standing Phase Angle Reduction in Power Systems
Adibi, Mahmood; Industrial Research and Development Corp., Bethesda, MD 20827
III 9160779 A000; 01/01/1992; $49,940; 6

Electron Beam Sterilization of Infectious Hospital Waste
Adler, Richard; North Star Research Corp., Albuquerque, NM 87108
III 9161254 A000; 02/01/1992; $49,988; 6 mo.

Resonant Beam Silicon Accelerometers
Allen, Henry; Silicon Microstructures Inc., Fremont, CA 94539
III 9161136 A000; 01/15/1992; $47,117; 6 mo.

Smart Fluids
Almeida, Oscar; Cape Cod Research Inc., Buzzards Bay, MA 02532
III 9160170 A000; 01/01/1992; $50,000; 6 mo.

Synthesis of New Photoreagents for Photochemical Immobilization
Amos, Richard; Bio-Metric Systems Inc., Eden Prairie, MN 55344
III 9160346 A000; 01/01/1992; $50,000; 6 mo.

Frequency Hopping Code Division Multiple Access for Mobile Cellular Communications
Apelewicz, Tuvia; SCS Telecom Inc., Port Washington, NY 11050
III 9161059 A000; 01/01/1992; $49,664; 6 mo.

Metal Matrix Composite Heat Sink with Improved Thermal Transmission
Arya, Prakash; Materials and Electrochemical Research Corp., Tucson, AZ 85706
III 9161374 A000; 02/01/1992; $50,000; 6 mo.

A Flexible Flatjack for Quantitative Evaluation of Masonry
Atkinson, Richard; Atkinson-Noland and Associates Inc., Boulder, CO 80302
III 9161482 A000; 01/01/1992; $47,331; 6 mo.

Real-Time Autostereoscopic 3D Holographic Display
Aye, Tin; Physical Optics Corp., Torrance, CA 90501
III 9160466 A000; 01/01/1992; $49,998; 6 mo.

Holographic Coatings for Telescopes
Aye, Tin; Physical Optics Corp., Torrance, CA 90501
III 9160680 A000; 01/01/1992; $49,988; 6 mo.

An Interactive Multimedia Exploration of the Concepts and Applications of Mathematics
Beauchamp, Donovan; Avalon Integrated Services Corp., Washington, DC 20005
III 9161125 A000; 02/01/1992; $49,367; 6 mo.

Improvement of Strength and Reliability of Structural Ceramics Through Ion Implantations
Bhattacharya, Rabi; Universal Energy Systems Inc., Dayton, OH 45432-1894
III 9160355 A000; 01/01/1992; $49,946; 6 mo.

Parallel Database Search Technology Using Linda(R)
Bjornson, Robert; Scientific Computing Associates Inc., New Haven, CT 06510
III 9160088 A000; 01/15/1992; $49,349; 6 mo.

Process-Trellis Architecture for Parallel Real-Time Monitors and Data Fusion Applications
Bjornson, Robert; Scientific Computing Associates Inc., New Haven, CT 06510
III 9160258 A000; 01/01/1992; $49,349; 6 mo.

A Novel Mass Spectrometer for Direct Mixture Analysis
Bomse, David; Southwest Sciences Inc., Santa Fe, NM 87501
III 9160864 A000; 01/01/1992; $50,000; 6 mo.

Integrated Manufacturing System for Diffractive Optics
Bowen, John; Rochester Photonics Corp., Fairport, NY 14450
III 9161206 A000; 01/01/1992; $49,984; 6 mo.

A Novel Gallium Arsenide Extraction/Recovery Bioprocess
Bowers-Irons, Gail; Technical Research Associates Inc., Salt Lake City, UT 84108
III 9160943 A000; 01/01/1992; $50,000; 6 mo.

Oscillating Flow in Stirling Microrefrigerators: Empirical Verification of Analytical Results
Bowman, Lyn; Sunpower Inc., Athens, OH 45701
III 9160269 A000; 01/01/1992; $49,959; 6 mo.

High Concentration Ozone Production for Semiconductor Manufacturing
Boyers, David; Adelphi Technology Inc., Palo Alto, CA 94306
III 9161024 A000; 01/01/1992; $50,000; 6 mo.

A Low GPS Time Sensor for Use in Power System Control (SBIR Phase I)
Brown, Alison; NAVSYS Corp., Colorado Springs, CO 80921
III 9160302 A000; 01/15/1992; $50,000; 6 mo.

Dynamics of Fluid Mixing in Time-Dependent Viscous Wakes, Jets, and Shear Layers
Browning, William; Applied Mathematics Inc., Gales Ferry, CT 06335
III 9160104 A000; 01/01/1992; $50,000; 6 mo.

Reactive Coating of Carbides by Simultaneous Ion Bombardment and Material Deposition
Bunker, Stephen; Implant Sciences Corp., Wakefield, MA 01880
III 9160136 A000; 01/01/1992; $49,949; 6 mo.

Combustion Synthesis of Silicon Carbide for Advanced Ceramics
Calcote, Hartwell; AeroChem Research Laboratories Inc., Princeton, NJ 08542
III 9160896 A000; 01/01/1992; $50,000; 6 mo.

Decisions Involving Science, Technology and Society
Campbell, Vincent; Decision Systems, Inc., Reston, VA 22090
III 9160333 A000; 05/15/1992; $49,442; 6 mo.

Active 3D Packaging Architecture
Carson, John; Irvine Sensors Corp., Costa Mesa, CA 92626
III 9161045 A000; 01/01/1992; $49,942; 6 mo.

Reversed Micellar Fractionation of Recombinant-DNA Therapeutic Protein Intermediates
Castor, Trevor; Bio-Eng Inc., Arlington, MA 02174
III 9160618 A000; 03/15/1992; $50,000; 6 mo.

Feasability of High Mass Resolution Matrix-Assisted Desorption Mass Spectrometry
Chakel, John; Charles Evans & Associates, Redwood City, CA 94063
III 9160545 A000; 01/01/1992; $49,563; 6 mo.

Cost-Effective Bulk Sterilization of Medical Products with New Linear Induction Accelerators
Chen, Xing; Science Research Laboratory Inc., Somerville, MA 02143
III 9160133 A000; 01/01/1992; $49,949; 6 mo.

Efficient Computer Simulation Program for a General Class of Mechanical Systems
Chen, Jigien; K & D Research, Silver Spring, MD 20904
III 9160264 A000; 08/01/1992; $48,932; 6 mo.

Radiation Resistant Scintillating Plastic Fibers
Choi, Won; Nanoptics Inc., Gainesville, FL 32609
III 9160631 A000; 01/01/1992; $50,000; 6 mo.

Astronomy Detector Array Applications
Chow, Peter; Superior Vacuum Technology, Eden Prairie, MN 55344
III 9160207 A000; 03/15/1992; $49,704; 6 mo.

Conducting Polymer Composites for Use as Infrared Polarizers
Colaneri, Nicholas; UNIAX Corp., Santa Barbara, CA 93111
III 9160525 A000; 01/01/1992; $49,518; 6 mo.

A Low-Leakage Gallium Phosphide Particle Detector
Collins, Sandra; AstroPower Inc., Newark, DE 19716-2000
III 9160281 A000; 01/01/1992; $50,000; 6 mo.

Broad-Band, Wide Dynamic Range Fiber-Optic Accelerometer System for Ground Motion Surveys
Davis, Charles; Optical Technologies Inc., Herndon, VA 22070-5225
III 9160191 A000; 01/15/1992; $49,956; 6 mo.

New Polymers for Aqueous Two-Phase Extraction Systems
Davis, Edward; SymBiotech Inc., Wallingford, CT 06492
III 9160233 A000; 01/01/1992; $49,611; 6 mo.

A Conceptual Design Environment for Manufacturing Engineering
de Witte, Paula; Knowledge Based Systems Inc., College Station, TX 77845-5424
III 9160529 A000; 01/15/1992; $49,829; 6 mo.

Variable Volume Socket for Limb Prostheses
Dean, Robert; Dean Technology Inc., Hanover, NH 03755
III 9161011 A000; 01/01/1992; $49,990; 6 mo.

An Adhesion-Deficient Methylosinus Trichosporium OB3b for In Situ Bioremediation of Trichloroethylene-Contaminated Aquifers
DeFlaun, Mary; Envirogen Inc., Lawrenceville, NJ 08648
III 9160198 A000; 04/01/1992; $50,000; 6 mo.

A Speech Driven Computer Interface Based on Neural Networks
deVries, Bert; NeuroDimension Inc., Gainesville, FL 32601
III 9160161 A000; 01/15/1992; $50,000; 6 mo.

Combined Cost-Analysis for Planning in Manufacturing
Diehl, Gregory; Network Dynamics Inc., Burlington, MA 01803
III 9160421 A000; 01/01/1992; $50,000; 6 mo.

A Waterborne and Environmentally Benign Antifouling Paint
Dixon, Brian; Cape Cod Research Inc., Buzzards Bay, MA 02532
III 9160964 A000; 01/15/1992; $50,000; 6 mo.

A High-Speed Radar Processor for Improved Studies of the Earth's Ionosphere and Upper Atmosphere
Djuth, Frank; Geospace Research Inc., El Segundo, CA 90245
III 9161361 A000; 01/01/1992; $49,950; 6 mo.

An Intelligent Geographic Information System for Better Earthquake Risk Management
Dong, Wei Min; Risk Management Software Inc., Mountain View, CA 94041
III 9161310 A000; 01/01/1992; $49,150; 6 mo.

Chemical and Photochemical Factors Controlling the Photoefficiency of Photopromoted Solid-Catalyzed Oxidative Decomposition of Organic Vapors
Dong, Junchang; Project Sunrise Inc. (formerly Synlize Inc.), Newton, MA 02159
III 9161466 A000; 02/01/1992; $50,000; 6 mo.

Computer-Aided Instrument Design System
Donskoy, Boris; Digital Video Processing Inc., Rockville, MD 20850
III 9160924 A000; 02/01/1992; $50,000; 6 mo.

Evaluation of the Use of the Wavelet Transform for Analysis of Mechanical Transients
Dowling, Martin; Liberty Technologies, Conshohocken, PA 19428
III 9160156 A000; 01/01/1992; $50,000; 6 mo.

Object-Oriented Database for Genetic Information
Dragomirecky, Martin; Equinoxe Engineering, Falls Church, VA 22043
III 9160738 A000; 04/01/1992; $50,000; 6 mo.

Fiber-Reinforced Diamond Ceramic Composites
Drory, Michael; Crystallume, Menlo Park, CA 94025
III 9161033 A000; 01/01/1992; $49,800; 6 mo.

Bubble Nuclei Measurement via an Inverse Acoustic Scattering Technique
Duraiswami, Ramani; Dynaflow Inc., Fulton, MD 20759
III 9160484 A000; 01/01/1992; $50,000; 6 mo.

A New Method for Adaptive Grid Generation
Dvinsky, Arkady; Daat Research, Lyme, NH 03768
III 9160249 A000; 01/01/1992; $49,970; 6 mo.

Courseware for Fluid Dynamics
Dvinsky, Arkady; Daat Research, Lyme, NH 03768
III 9161216 A000; 01/15/1992; $49,950; 6 mo.

Demonstration of a Method of Creating a Very High Resolution Autostereoscopic Flat Panel Display
Eichenlaub, Jesse; Dimension Technologies Inc., Rochester, NY 14612
III 9161185 A000; 01/01/1992; $49,988; 6 mo.

An Autostereoscopic Display for Telerobotic Applications
Eichenlaub, Jesse; Dimension Technologies Inc., Rochester, NY 14612
III 9161250 A000; 01/01/1992; $49,983; 6 mo.

Catadioptric Lens for Excimer Laser Lithography
Elliot, David; Excimer Laser Systems Inc., West Newton, MA 02165
III 9161062 A000; 01/15/1992; $48,255; 6 mo.

On-Chip Transform IR Spectroscopy by Superconducting Detector Arrays with a Graded Interference Filter
Fenner, David; Advanced Fuel Research Inc., East Hartford, CT 06138-0379
III 9160506 A000; 01/01/1992; $49,876; 6 mo.

Qualitative Ecological Modeling System
Ferson, Scott; Applied Biomathematics Inc., Setauket, NY 11733
III 9160527 A000; 05/15/1992; $49,975; 6 mo.

Isotope Ratio and Trace Elemental Imaging of Minerals by Secondary Ion Mass Spectometry
Fleming, Ronald; Charles Evans AND Associates, Redwood City, CA 94063
III 9160939 A000; 01/15/1992; $49,987; 6 mo.

Laser Absorptometer for Detection of Trace Species
Flusberg, Allen; Science Research Laboratory Inc., Somerville, MA 02143
III 9160992 A000; 01/01/1992; $49,718; 6 mo.

Implementation of a Technique to Amplify Complex Signals Through Non-Linear Amplifiers
Fredericks, Ward; Mixtec Signal Technology (MST. Inc.), Westlake Village, CA 91362
III 9161100 A000; 01/01/1992; $48,955; 6 mo.

Evaluation of a Portable Microcomputer-Based Laboratory in Sixth-Grade Science Classes
Frey, Donald; Architectural Energy Corp., Boulder, CO 80301
III 9160547 A000; 01/15/1992; $49,999; 6 mo.

A CAD Expert System for Structural Design of Repairs
Fujimoto, William; Advanced Structural Technology Inc., University City, MO 63130
III 9160886 A000; 01/01/1992; $49,980; 6 mo.

Feasibility of Aiding Decisions Through Automated Data Retrieval from the Perspective of Practicing Physicians
Geiwitz, James; Anacapa Sciences Inc., Santa Barbara, CA 93102-0519
III 9160456 A000; 01/01/1992; $50,000; 6 mo.

Improved Membranes for Electrosynthesis
Genders, J. David; Electrosynthesis Company Inc., Buffalo, NY 14227
III 9161086 A000; 01/15/1992; $50,000; 6 mo.

Novel Anodes for Pollution Control
Genders, J. David; Electrosynthesis Company Inc., Buffalo, NY 14227
III 9161087 A000; 01/15/1992; $50,000; 6 mo.

Automatic Astronomical Spectrograph
Genet, David; AutoScope Corp., Mesa, AZ 85214-2560
III 9160165 A000; 01/01/1992; $50,000; 6 mo.

Advanced Seismic Damping Devices for Flexible Frame Buildings
Gibson, Warren; CSA Engineering Inc., Palo Alto, CA 94303-3843
III 9161018 A000; 01/15/1992; $50,000; 6 mo.

Heterotrophic Microalgae as an Inexpensive Feed for Rotifers
Gladue, Raymond; Martek Corp., Columbia, MD 21045
III 9161003 A000; 01/01/1992; $49,534; 6 mo.

Novel Organoselenium Source Reagents for Metalorganic Chemical Vapor Deposition of Zinc Selenide
Gordon, Douglas; Advanced Technology Materials Inc., Danbury, CT 06810-4131
III 9160557 A000; 01/01/1992; $50,000; 6 mo.

Novel Titanium Source Reagents for Indium Phosphide Doping
Gordon, Douglas; Advanced Technology Materials Inc., Danbury, CT 06810-4131
III 9161230 A000; 01/15/1992; $50,000; 6 mo.

Biotechnology Teaching and Learning Resource Materials
Graf, Karen; Edvotek Inc., Bethesda, MD 20817
III 9160747 A000; 02/01/1992; $49,533; 6 mo.

High Temperature Superconducting Coatings on Non-Planar Surface
Greenwald, Anton; Spire Corp., Bedford, MA 01730
III 9160123 A000; 01/01/1992; $49,865; 6 mo.

Investigating Automated Biomonitoring as a Management Tool Toward the Elimination of Pollutants that Adversely Affect Aquatic Environmental Quality
Gruber, David; Biological Monitoring Inc., Blacksburg, VA 24063
III 9161351 A000; 01/01/1992; $49,266; 6 mo.

Nondestructive Evaluation by Quantitative Dielectric Imaging
Guo, Wendy; Potomac Research Inc., Potomac, MD 20854
III 9160677 A000; 01/01/1992; $49,991; 6 mo.

Anomalous Metallic-Like Optical Phenomena in Multilayer Thin Film Assemblies
Gustafson, Paul; Fusion Systems Corp., Rockville, MD 20855
III 9160327 A000; 01/01/1992; $46,972; 6 mo.

Photobleachable Host-Guest Thin Films for Optical Waveguides
Halpern, Bret; Jet Process Corp., New Haven, CT 06511
III 9160294 A000; 01/15/1992; $50,000; 6 mo.

A Two-Dimensional, Multi-Channel Bio-Polymer Purification System
Hansen, Marcia; FFFractionation Inc., Salt Lake City, UT 84119-1449
III 9160420 A000; 01/01/1992; $50,000; 6 mo.

Fast 3D Imaging
Haynes, Leonard; Intelligent Automation Inc., Rockville, MD 20850
III 9160606 A000; 01/01/1992; $49,916; 6 mo.

Phase Stabilized Laser Diode
Hercher, Michael; OPTRA Inc., Beverly, MA 01915
III 9160643 A000; 01/15/1992; $49,919; 6 mo.

Remote Voice Interface for Computer Control
Hutchins, Sandra; Emerson & Stern Associates, San Diego, CA 92121
III 9161057 A000; 01/01/1992; $49,805; 6 mo.

Multi-Rate, Trellis-Coded Modulation for Multipath Fading Channels
Jacobsmeyer, Jay; ENSCO Inc., Springfield, VA 22151
III 9161131 A000; 01/01/1992; $49,965; 6 mo.

Large Diameter Fiber Optic Tapers
Jeskey, Richard; Incom Inc., Southbridge, MA 01550
III 9160206 A000; 01/15/1992; $50,000; 6 mo.

Thin-Film Solid-Oxide Fuel Cell
Johnson, Brad; Analytic Power Corp., Boston, MA 02117-1189
III 9160890 A000; 01/15/1992; $49,817; 6 mo.

Novel Photoactive Process for Microlithographic Applications
Johnson, Donald; Microlithography Consulting Co. Inc., Brookline Village, MA 02147
III 9160982 A000; 01/15/1992; $49,552; 6 mo.

Tactile Feedback Output Device for Scanning Tunneling Microscope
Johnson, A. David; TiNi Alloy Company, Oakland, CA 94608
III 9161274 A000; 01/01/1992; $50,000; 6 mo.

In-Process Control of Turned Threads
Johnson, James; NETROLOGIC Inc., San Diego, CA 92122-5932
III 9161412 A000; 01/01/1992; $50,000; 6 mo.

Computer Simulation of Reactors for Chemical Vapor Deposition
Karki, Kailash; Innovative Research Inc., Minneapolis, MN 55414
III 9161060 A000; 01/01/1992; $50,000; 6 mo.

A Chlorophyll Fluorescence Sensor for Ecological Studies
Kebabian, Paul; Aerodyne Research Inc., Billerica, MA 01821-3976
III 9160487 A000; 05/15/1992; $50,000; 6 mo.

Diamond Film Generation from a Combustion Jet
Keil, David; AeroChem Research Laboratories Inc., Princeton, NJ 08542
III 9161303 A000; 01/01/1992; $50,000; 6 mo.

Multi-Resolution Based Video Image Compression
Kendall, William; Space Computer Corp., Santa Monica, CA 90404-4119
III 9161184 A000; 01/01/1992; $50,000; 6 mo.

Perceptual Speed, Switching, and Temporal Acuity Factors in Cognition
Kennedy, Robert; Essex Corp., Florida, Orlando, FL 32803
III 9160623 A000; 01/01/1992; $49,960; 6 mo.

Improvements in Aerobic Bioreactor Cell Capacity Through Facilitated Oxygen Transport Agents
Kerr, John; Aquanautics Corp., Alameda, CA 94501
III 9161004 A000; 01/01/1992; $49,993; 6 mo.

Beverage Deoxygenation Through Electrochemically Regenerated Metal Chelates
Kerr, John; Aquanautics Corp., Alameda, CA 94501
III 9161005 A000; 01/01/1992; $49,952; 6 mo.

Q-Switched Operation of Microchip Laser Composite Cavities
Keszenheimer, James; MICRACOR Inc., Concord, MA 01742
III 9160139 A000; 01/15/1992; $50,000; 6 mo.

Researching Custom Keyboard Overlays for Disabled Computer Users
Khalsa, Arjan; Unicorn Engineering Inc., Richmond, CA 94804
III 9161294 A000; 01/15/1992; $49,745; 6 mo.

Aluminum-Gallium-Nitride Heterostructures for High-Temperature Transistor and Sensor Applications
Khan, M. Asif; APA Optics Inc., Blaine, MN 55434
III 9160469 A000; 01/01/1992; $49,938; 6 mo.

A Method for Growing New Crystals for Laser Applications
Khattak, Chandra; Crystal Systems Inc., Salem, MA 01970
III 9160858 A000; 01/01/1992; $50,000; 6 mo.

Interactive, Semi-Automated, Lagrangean Relaxation and Decomposition Modeling System for Linear and Mixed Integer Programming
Kimble, Robert; Daniel H Wagner Associates Inc., Paoli, PA 19301
III 9160722 A000; 01/01/1992; $49,998; 6 mo.

Ferroelectric High-Brightness Electron Source
Kirkman, George; Integrated Applied Physics Inc., Arcadia, CA 91006
III 9160797 A000; 01/15/1992; $50,000; 6 mo.

New Conducting Polymers for Use as Active Layers in Light Emitting Diodes
Klavetter, Floyd; UNIAX Corp., Santa Barbara, CA 93111
III 9160937 A000; 01/01/1992; $48,171; 6 mo.

Oxide Dispersion Strengthened Magnesium Piston Alloy
Klier, Eric; Chesapeake Composites Corp., Wilmington, DE 19808
III 9160518 A000; 04/01/1992; $49,940; 6 mo.

Polar Satellite Communication Terminal
Knight, Curtis; Interferometrics Inc., Vienna, VA 22182
III 9160353 A000; 01/01/1992; $49,957; 6 mo.

Novel Chromatographic Supports: Methods and Processes
Kolesinski, Henry; Advanced Surface Technology Inc., Billerica, MA 01821
III 9160658 A000; 01/01/1992; $50,000; 6 mo.

Supercritical Fluid Purification of Alane:Trimethylamine
Kosar, Walter; Advanced Technology Materials Inc., Danbury, CT 06810-4131
III 9160536 A000; 01/01/1992; $50,000; 6 mo.

System Identification for Robust Control Design
Kosut, Robert; Integrated Systems Inc., Santa Clara, CA 95054-1215
III 9161408 A000; 01/01/1992; $49,994; 6 mo.

Efficient Second Harmonic Generation of Gallium Aluminum Arsenide Diode-Laser Radiation in a Self-Locking External Ring Resonator
Kuo, Chai-Pei; Physical Optics Corp., Torrance, CA 90501
III 9160713 A000; 01/01/1992; $49,988; 6 mo.

Computer Modeling of Stochastic Groundwater Flow
Lafe, Olurinde; OLTech Corp., Beachwood, OH 44122
III 9160171 A000; 01/01/1992; $50,000; 6 mo.

Novel Toroidal Electron Cyclotron Resonance Reactor for Semiconductor Materials Processing
Lane, Barton; Plasma Dynamics, Belmont, MA 02178
III 9160132 A000; 01/01/1992; $50,000; 6 mo.

Analysis and Design of a Buoy Mounted Wind Profiler for Remote Measurement of Ocean Winds
Langlois, Philip; Quadrant Engineering Inc., Amherst, MA 01002
III 9161067 A000; 01/01/1992; $50,000; 6 mo.

High-Temperature Ceramic Dies for Superplastic Forming
Laurich-McIntyre, Suzanne; Pyro Media Inc., Seattle, WA 98108
III 9160182 A000; 02/01/1992; $50,000; 6 mo.

Intelligent Tutoring Games for Interest-Based Learning
Leddo, John; Research Development Corp., Reston, VA 22091
III 9160792 A000; 02/01/1992; $49,998; 6 mo.

Maximum Likelihood High Performance Liquid Chromatography MS/MS Protein Sequencing
Lipshutz, Robert; Daniel H Wagner Associates Inc. (Sunnyvale Office), Sunnyvale, CA 94089
III 9160570 A000; 04/01/1992; $49,085; 6 mo.

Coordinating Controllers for Multi-Objective Autmomatic Generation Control
Lo, Edward; EPIC Engineering Inc., Los Altos, CA 94022
III 9161208 A000; 01/15/1992; $50,000; 6 mo.

Field Effect Transistor X-Ray Spectrometer
Lund, James; Radiation Monitoring Devices Inc., Watertown, MA 02172
III 9160384 A000; 01/01/1992; $50,000; 6 mo.

In-Situ Measurement of Dissolved Metals in Ground Water Using Microfabricated Electrochemical Sensors
Maciel, Paul; In-Situ Sensors, Lexington, MA 02173
III 9160693 A000; 01/01/1992; $50,000; 6 mo.

Modelling Forest Growth and Optimizing Timber Harvest Utilizing Microcomputer Based Geographic Information Systems Technology
Maclean, Gordon; Maclean Consultants Ltd., Houghton, MI 49931
III 9161107 A000; 01/01/1992; $48,866; 6 mo.

Novel Techniques for Polishing Diamond Films
Malshe, Ajay; Materials Modification Inc., Fairfax, VA 22031
III 9160777 A000; 01/15/1992; $49,786; 6 mo.

Improved CO2 Lasers for Remote Atmospheric Sensing
Manning, Herbert; Science Research Laboratory Inc., Somerville, MA 02143
III 9160138 A000; 01/15/1992; $49,981; 6 mo.

Temperature Modulation Instrument for Glass Manufacturing
Markham, James; Advanced Fuel Research Inc., East Hartford, CT 06138-0379
III 9160583 A000; 01/01/1992; $49,516; 6 mo.

New Technology for Monitoring Global Change
Markson, Ralph; Airborne Research Associates Inc., Weston, MA 02193
III 9160660 A000; 01/01/1992; $50,000; 6 mo.

Highly Portable, Flexible Silicon Solar Cell Arrays for Polar Operations
Mauk, Michael; AstroPower Inc., Newark, DE 19716-2000
III 9160348 A000; 01/01/1992; $50,000; 6 mo.

Investigation of a Bioremediation Process Based on Novel Immobilized Enzymes
McCray, Scott; Bend Research Inc., Bend, OR 97701-8599
III 9160467 A000; 01/01/1992; $49,934; 6 mo.

Educational Software for Computational Fluid Dynamics
McDonald, Henry; Scientific Research Associates Inc., Glastonbury, CT 06033
III 9160577 A000; 01/15/1992; $49,822; 6 mo.

Biocontrol of Soilborne Plant Pathogens in Bare Root Conifer Nurseries
McElroy, Fred; Peninsu-Lab, Poulsbo, WA 98370-8814
III 9161120 A000; 05/15/1992; $49,920; 6 mo.

Using Interactive Videodisc Technology to Increase the Quantity and Quality of Science Instruction Through the Integration of Science in the FLES Curriculum
McLeod, Shirley; Advanced Creative Educational Systems Inc., Webberville, MI 48892
III 9161151 A000; 01/15/1992; $49,105; 6 mo.

New Materials for Optical Wave Guides
Meador, Jim; Brewer Science Inc., Rolla, MO 65401
III 9160537 A000; 01/15/1992; $50,000; 6 mo.

High-Flux VUV and Atomic Oxygen Source Used as a Photoresist Asher
Meyer, Jack; Quantum Research Corp., Fort Collins, CO 80525-3134
III 9160366 A000; 01/15/1992; $49,924; 6 mo.

A Non-Invasive Sensor Technique for Process Control in Plasma Processing Reactors
Meyyappan, M.; Scientific Research Associates Inc., Glastonbury, CT 06033
III 9161456 A000; 01/01/1992; $49,897; 6 mo.

Extracting Useful Information from International Patent Records
Mogee, Mary; Mogee Research and Analysis Associates, Great Falls, VA 22066
III 9160774 A000; 01/15/1992; $50,000; 6 mo.

All-Optic Bimodal Fiber-Optic Logic Gates for Optical Computing Applications
Moslehi, Behzad; Optivision Inc., Palo Alto, CA 94303
III 9160947 A000; 01/01/1992; $50,000; 6 mo.

Highly Parallel Wavelength Distributed Data Interface for Fiber-Optic Local Area Networks
Moslehi, Behzad; Optivision Inc., Palo Alto, CA 94303
III 9161411 A000; 01/01/1992; $50,000; 6 mo.

Delamination Propagation in Advanced Composites - Modelling and Experiments
Mukherjee, Yu; DeHan Engineering Numerics, Ithaca, NY 14850
III 9160889 A000; 01/01/1992; $50,000; 6 mo.

Paired Electrochemical Synthesis of Organic Compounds
Murphy, Oliver; Lynntech Inc., Bryan, TX 77803
III 9161209 A000; 01/15/1992; $50,000; 6 mo.

Joint Implant Surfaces
Naiman, Charles; Orthogen Inc., New York, NY 10003-9704
III 9160684 A000; 01/15/1992; $50,000; 6 mo.

Neurospora Secretion Expression Vector Development
Nakano, Eileen; Hawaii Biotechnology Group Inc., Aiea, HI 96701
III 9160750 A000; 01/01/1992; $50,000; 6 mo.

GaAs Buffer Layers by Ion Implantation and Metalorganic Chemical Vapor Deposition
Namavar, Fereydoon; Spire Corp., Bedford, MA 01730
III 9160122 A000; 01/15/1992; $49,960; 6 mo.

Silicon Flat Panel Displays
Namavar, Fereydoon; Spire Corp., Bedford, MA 01730
III 9161265 A000; 01/15/1992; $49,993; 6 mo.

Crosslinked Enzyme Crystals as Catalysts in Organic Synthesis
Navia, Manuel; Vertex Pharmaceuticals Inc., Cambridge, MA 02139
III 9160381 A000; 01/01/1992; $49,556; 6 mo.

Building a Foundation for Learning Mathematics for Blind Students
Navy, Caryn; Raised Dot Computing Inc., Madison, WI 53703
III 9160364 A000; 01/15/1992; $38,100; 6 mo.

New, Medically Useful, Ionically Modified Lactide/Glycolide Polymers
Nichols, Larry; BIOTEK Inc., Woburn, MA 01801
III 9160209 A000; 01/01/1992; $50,000; 6 mo.

Improved Synthesis of Megapeptide Arrays
Nishioka, Gary; H&N Instruments Inc., Newark, OH 43055
III 9160637 A000; 01/01/1992; $50,000; 6 mo.

Low Temperature Diamond Film Coating Technique
Oakes, David; Physical Sciences Inc., Andover, MA 01810
III 9160217 A000; 01/01/1992; $50,000; 6 mo.

Surface-Emitting Laser Arrays for High-Speed Optical Addressing
Olbright, Greg; Photonics Research Inc., Boulder, CO 80301-2454
III 9160548 A000; 01/15/1992; $49,994; 6 mo.

New Silicon Photodiode for Scintillation Spectroscopy
Olschner, Frederick; Radiation Monitoring Devices Inc., Watertown, MA 02172
III 9161360 A000; 01/01/1992; $50,000; 6 mo.

Wearable Information Systems for Construction Site Management
Pasquale, Angelo; Frontier Systems Inc., Pittsburgh, PA 15219
III 9160772 A000; 01/01/1992; $50,000; 6 mo.

Computational Development of Order Restricted Statistical Inference
Peng, Yongren; MO-SCI Corp., Rolla, MO 65401
III 9160130 A000; 01/01/1992; $49,998; 6 mo.

Parallel, Asychronous Global Optimization Techniques for Medium and Large Inversion Problems
Pereyra, Victor; Weidlinger Associates, Los Altos, CA 94022
III 9160572 A000; 01/01/1992; $49,916; 6 mo.

Process for the Production of Ethylene Glycol Directly from Ethane
Periana, Roy; Catalytica Inc., Mountain View, CA 94043
III 9161471 A000; 01/01/1992; $49,750; 6 mo.

A Collimated X-Ray Lithography Source Using a Kumakhov Lens
Piestrup, Melvin; Adelphi Technology Inc., Palo Alto, CA 94306
III 9160568 A000; 01/15/1992; $49,993; 6 mo.

ECR-Powered Sputtering Techniques for the Deposition of Metal Oxide Thin Films (Including Superconductors)
Post, Richard; Applied Science and Technology Inc., Woburn, MA 01801
III 9160531 A000; 01/01/1992; $50,000; 6 mo.

Improved Method for Manufacture of Mechanically Alloyed Composite Nb3Sn Conductors
Randall, Robert; Supercon Inc., Shrewsbury, MA 01545
III 9160912 A000; 01/01/1992; $49,977; 6 mo.

Professional Development to Promote Discovery and Cooperative Learning
Rasmussen, Steven; Key Curriculum Press, Berkeley, CA 94702
III 9160539 A000; 02/01/1992; $50,000; 6 mo.

Techniques for the Collection and Utilization of Fish Culture Wastes and Fish Processing Wastes from a Marine Aquaculture Operation
Reid, Bart; Aquamar Production Research Corp., Panama City, FL 32411-7099
III 9161464 A000; 05/01/1992; $50,000; 6 mo.

Multilayer Reflective X-Ray Phase Gratings with Periods less than .5 Microns
Reyes-Mena, Arturo; Multilayer Optics and X-ray Technology Inc., Provo, UT 84602
III 9160286 A000; 01/01/1992; $50,000; 6 mo.

A Novel, Compact DC Particle Accelerator for Deep Shaft Geophysical Strata Logging
Richter-Sand, Robert; North Star Research Corp., Albuquerque, NM 87108
III 9160436 A000; 01/15/1992; $49,971; 6 mo.

Use of Micellar-Enhanced Ultrafiltration for Removal/Recovery of Dissolved Organics and Metals from Water
Roberts, Bruce; Surfactant Associates Inc., Norman, OK 73071
III 9160806 A000; 02/15/1992; $50,000; 6 mo.

Soft X-Ray Diffraction Plate
Rosser, Roy; Princeton X-Ray Laser Inc., Monmouth Junction, NJ 08852
III 9160166 A000; 01/01/1992; $49,755; 6 mo.

Increasing Capacity with Spatial-Division Multiple-Access in Wireless Communication Networks
Roy, Richard; Systems Research Associates Inc., Cupertino, CA 95014
III 9160681 A000; 01/01/1992; $49,470; 6 mo.

SQUID Technology for Improved NMR/NQR Measurements Below 1MHz
Sager, Ronald; Quantum Magnetics Inc., San Diego, CA 92121
III 9160966 A000; 01/01/1992; $49,969; 6 mo.

Heterojunction Materials Characterization
Salerno, Jack; Kopin Corp., Taunton, MA 02780
III 9160685 A000; 01/01/1992; $49,902; 6 mo.

Extra Large Field Size Sub-Quarter Micron Lithography
Savant, Gajendra; Physical Optics Corp., Torrance, CA 90501
III 9160329 A000; 01/15/1992; $49,997; 6 mo.

X-Ray Imaging Detector for Protein Crystallography
Schempp, William; Photometrics Inc., Tucson, AZ 85745
III 9160928 A000; 04/01/1992; $49,892; 6 mo.

A System for Measuring Capillary Blood Flow and Organ Perfusion Using Doppler Ultrasound Aided by Contrast Enhancement
Schrope, Beth; RESHET Inc., Philadelphia, PA 19104
III 9161006 A000; 01/15/1992; $48,886; 6 mo.

Electrochemical Formation of Thin-Ceramic, Mixed-Conduction Membranes for Oxygen Separation
Schwartz, Michael; Eltron Research Inc., Aurora, IL 60504
III 9161276 A000; 01/15/1992; $49,998; 6 mo.

Neutron Focusing Using Kumakhov Lens
Sharov, Vasili; X-Ray Optical Systems Inc., Albany, NY 12222
III 9160609 A000; 01/01/1992; $50,000; 6 mo.

Security-Constrained Unit Commitment
Shaw, John; Alphatech Inc., Burlington, MA 01803-4562
III 9160169 A000; 01/15/1992; $50,000; 6 mo.

Global Optimization in Computational Chemistry Using Interval Arithmetic
Sherman, Andrew; Scientific Computing Associates Inc., New Haven, CT 06510
III 9161367 A000; 01/01/1992; $49,770; 6 mo.

Match Filtering Deconvolution for Improved Computed Tomography Spatial Resolution
Silver, Michael; Bio-Imaging Research Inc., Lincolnshire, IL 60069
III 9160978 A000; 01/01/1992; $49,505; 6 mo.

Improved Diamond Polishing Through an Ion Implantation Assisted Technique
Sioshansi, Piran; Spire Corp., Bedford, MA 01730
III 9161261 A000; 01/01/1992; $49,949; 6 mo.

X-Ray Mask Fabrication Using Diamond Membranes and Metallic Diamondlike Nanocomposite Absorbers
Srivatsa, Arun; Moltech Corp., Stony Brook, NY 11794-3400
III 9160999 A000; 01/15/1992; $49,960; 6 mo.

Improved Visualization System for Massively Parallel Computers
Stein, Richard; Parallel Software Group, Long Beach, CA 90803
III 9161259 A000; 01/01/1992; $49,850; 6 mo.

Ultrafine Condensation Nucleus Counter for Stratospheric Pressures
Stolzenburg, Mark; Aerosol Dynamics, Berkeley, CA 94710
III 9161370 A000; 01/15/1992; $50,000; 6 mo.

Computer-Aided Instruction of Surface Analysis Techniques
Strathman, Michael; Charles Evans & Associates, Redwood City, CA 94063
III 9161301 A000; 02/01/1992; $49,579; 6 mo.

Waveguide Grating Structures in Silicon for High-Speed Optical Modulators at Wavelength 1.3m
Strzelecki, Eva; Physical Optics Corp., Torrance, CA 90501
III 9161430 A000; 01/15/1992; $49,987; 6 mo.

Process Modeling of a Novel Plasma-Enhanced Vapor Deposition Concept Using Statistical Design of Experiments
Sunthankar, Mandar; IonEdge Corp., Fort Collins, CO 80526
III 9160419 A000; 01/01/1992; $49,948; 6 mo.

A Novel Linear Synapse Design for Analog Neural Networks
Tanner, John; Tanner Research Inc., Pasadena, CA 91107
III 9160399 A000; 01/01/1992; $49,894; 6 mo.

High-Efficiency Waste Heat/Solar Power System Utilizing Regenerative Zeolite Cycle
Tchernev, Dimiter; Zeopower Company, Natick, MA 01760
III 9160143 A000; 02/01/1992; $50,000; 6 mo.

CO2 Sensor System for Long-Term Ocean Monitoring
Tiernan, Timothy; TPL Inc., Albuquerque, NM 87109
III 9160100 A000; 01/15/1992; $50,000; 6 mo.

A Constraint-Based Engineering Mechanics Application Built on a Symbolic Mathematics System
Todd, Philip; Saltire Software Inc., Aloha, OR 97006
III 9161093 A000; 01/01/1992; $47,989; 6 mo.

Research on a Manufacturing Process for Making Long, Continuous, High Temperature Superconducting Wires and Tapes
Tomsic, Michael; Plastronic Inc., Troy, OH 45373
III 9160113 A000; 01/01/1992; $49,770; 6 mo.

Demonstration Modules for Applications of Biotechnology for High Schools
Trantolo, Debra; Cambridge Scientific Inc., Belmont, MA 02178
III 9160917 A000; 02/01/1992; $50,000; 6 mo.

Process Development and Manufacturing of TiN/TiO2/TiN Thin-Film Microcapacitors for High-Density Integrated Circuits
Truman, J. Kelly; CVC Products Inc., Rochester, NY 14603
III 9160410 A000; 02/01/1992; $50,000; 6 mo.

Computer-Aided-Engineering (CAE) for the Gas-Assisted Injection Molding Process
Turng, Lih-Sheng; Advanced CAE Technology Inc., Ithaca, NY 14850
III 9161150 A000; 01/01/1992; $49,010; 6 mo.

Investigation of Predictive Methods for Hurricane Winds in the United States
Twisdale, Lawrence; Applied Research Associates Inc., Albuquerque, NM 87110
III 9160135 A000; 01/15/1992; $49,998; 6 mo.

Membrane-Based, Two-Phase Flow System for Enantiomer Separation
van Eikeren, Paul; Bend Research Inc., Bend, OR 97701-8599
III 9160783 A000; 02/01/1992; $49,896; 6 mo.

Transparent Electrodes Vertical Cavity Surface Emitting Laser Modules for Optical Communications and Signal Processing Applications
Van Hove, Jim; APA Optics Inc., Blaine, MN 55434
III 9160508 A000; 01/15/1992; $49,945; 6 mo.

Low-Viscosity Perfluorinated Smectic C Hosts for Use in Fast Spatial Light Modulators
Wand, Michael; Displaytech Inc., Boulder, CO 80301
III 9160718 A000; 01/01/1992; $49,906; 6 mo.

Molybdenum Coating Process Using Liquid Metallo-Organic Precursors
Weeks, Joseph; Technical Research Associates Inc., Salt Lake City, UT 84108
III 9160495 A000; 01/15/1992; $50,000; 6 mo.

Optimal Capacity Expansion Under Uncertainty
Weisinger, James; Applied Decision Analysis Inc., Menlo Park, CA 94025
III 9160155 A000; 01/01/1992; $49,631; 6 mo.

An Advanced Composite Postformable Bone Plate
White, Moreno; Sparta Inc., San Diego, CA 92121-1964
III 9160996 A000; 01/01/1992; $49,998; 6 mo.

Direct Methane Activation to Methanol Across Mixed Conducting Membranes
White, James; Eltron Research Inc., Aurora, IL 60504
III 9161277 A000; 01/15/1992; $49,996; 6 mo.

A 3-D/4-D Computerized Model for Human-Machine Integration in Apparel Manufacturing Engineering
Willett, Shirley; Stylometrics Inc., Quincy, MA 02170
III 9161096 A000; 01/01/1992; $50,000; 6 mo.

Automated, Rapid Fabrication of Complex Optical Components
Wilson, Scott; Sandia Systems, Albuquerque, NM 87111
III 9160320 A000; 01/01/1992; $49,932; 6 mo.

Light Crawlers: Bioluminescence-Based Discoveries for Science Education
Winters, Suzanne; Protein Solutions Inc., Salt Lake City, UT 84108
III 9161158 A000; 01/15/1992; $50,000; 6 mo.

A Unique and New Plasma-Assisted Deposition Technique Utilizing In-Situ Renucleation
Withers, James; Materials and Electrochemical Research Corp., Tucson, AZ 85706
III 9161393 A000; 01/01/1992; $50,000; 6 mo.

Production of Submicron Spherical Ceramic Particles
Withers, James; Materials and Electrochemical Research Corp., Tucson, AZ 85706
III 9161394 A000; 01/01/1992; $50,000; 6 mo.

Electromechanical Finite Element Models for Ultrasound Transducer Analysis and Design
Wojcik, Gregory; Weidlinger Associates, Los Altos, CA 94022
III 9161050 A000; 01/15/1992; $49,886; 6 mo.

Regenerative Epitaxial Growth of Single-Crystal Diamond Films
Woo, James; InterScience Inc., Troy, NY 12180
III 9160096 A000; 01/01/1992; $49,813; 6 mo.

Commercial Opportunities Exploiting the Diversity of Beetle Luciferases
Wood, Keith; Promega Corp., Madison, WI 53711
III 9160613 A000; 01/01/1992; $50,000; 6 mo.

Low-Temperature Oxidation Catalysts
Wright, John; TDA Research Inc., Wheat Ridge, CO 80033
III 9160318 A000; 03/15/1992; $50,000; 6 mo.

Combustion Synthesis of Fullerenes
Wright, John; TDA Research Inc., Wheat Ridge, CO 80033
III 9160461 A000; 01/01/1992; $50,000; 6 mo.

A Computer-Based Testbed for Novel Integrated Antenna Design
Wu, Doris; Boulder Microwave Technologies Inc., Boulder, CO 80302
III 9161175 A000; 01/01/1992; $50,000; 6 mo.

Reverse Mode Polymer Dispersed Liquid Crystal Materials
Wu, Bao-Gang; Polytronix Inc., Richardson, TX 75081
III 9161281 A000; 01/01/1992; $49,504; 6 mo.

Improved High-Resolution Displays Combining Very-Large-Scale Integration and Polymer-Dispersed Liquid Crystal Technologies
Wu, Bao-Gang; Polytronix Inc., Richardson, TX 75081
III 9161282 A000; 01/01/1992; $49,921; 6 mo.

An Interactive Software Shell for Experiment Simulation in Science Education
Yacout, Abdelfatah; Quantum Research Services Inc., Durham, NC 27713-4411
III 9161153 A000; 02/01/1992; $50,000; 6 mo.

Limited-Scan Backscatter Technique for Detection of Hidden Corrosion
Yacout, Abdelfatah; Quantum Research Services Inc., Durham, NC 27713-4411
III 9161324 A000; 01/01/1992; $50,000; 6 mo.

New Q-Switched Devices for Infrared, Solid-State Lasers
Young, Eddie; NEOS Inc., Melbourne, FL 32934
III 9161348 A000; 01/15/1992; $49,995; 6 mo.

A Tunable Laser-Based Monitor for Atmospheric HO2
Zahniser, Mark; Aerodyne Research Inc., Billerica, MA 01821-3976
III 9160800 A000; 01/01/1992; $49,989; 6 mo.

New Laser Induced Deposition for Microelectronics Application
Zhou, Simon; Florod Corp., Gardena, CA 90247-5212
III 9160721 A000; 01/01/1992; $48,894; 6 mo.

Small Business Phase II

Biological Control of Soilborne Plant Pathogens in Containerized Growing Media
Ames, Robert; Peninsu-Lab, Poulsbo, WA 98370-8814
III 9011561 A001; 11/01/1990; $3,900; 0 mo.

Superconducting Seismometers
Avrin, William; Quantum Magnetics Inc., San Diego, CA 92121
III 9108657 A000; 07/01/1992; $252,105; 24 mo.

A Novel Instrument to Study the Effects of Turbulence Structure on the Cavitation of Turbomachinery
Bachalo, William; Aerometrics Inc., Sunnyvale, CA 94086
III 9115759 A000; 08/15/1992; $233,132; 24 mo.

Advanced Concept for Waste Gas Pollution Control
Bayless, John; John R Bayless Co., Malibu, CA 90265
III 9122767 A000; 06/01/1992; $250,000; 18 mo.

Quantification of Biodegradation of Wood at Inaccessible Locations
Bodig, Jozsef; Engineering Data Management Inc., Fort Collins, CO 80525
III 9022391 A000; 09/01/1992; $248,556; 24 mo.

Commercial Production of 3'-Azido-2',3'-Dideoxyuridine
Bruckmann, Edith; ChemLudens, Menlo Park, CA 94025
III 9102062 A000; 05/01/1992; $253,356; 21 mo.

Acoustic Doppler Directional Wave Spectrum Measurement
Brumley, Blair; RD Instruments, San Diego, CA 92131
III 9114706 A000; 06/01/1992; $225,840; 24 mo.

In-Situ Growth of Indium Arsenide/Antimonide Long Wavelength Photodiodes
Chan, William; Electro-Optek Corp., Torrance, CA 90505
III 9023197 A000; 03/01/1992; $252,228; 24 mo.

Linear Bolometer Arrays for Infrared Spectrometers
Clinton, James; Energy Science Laboratories Inc., San Diego, CA 92121
III 9122163 A000; 05/01/1992; $263,508; 24 mo.

Use of Low Cost Proprientary Catalyst to Reduce NOx in the Presence of Ammonia
Colannino, Joseph; Carnot Technical Services Inc., Tustin, CA 92680-7388
III 9104439 A000; 09/15/1991; $249,695; 24 mo.

Two-Component Lubricant/Coolant Fluids for High-Speed Machining
Colvin, David; Triangle Research and Development Corp., Research Triangle Park, NC 27709
III 9104909 A000; 06/01/1992; $235,229; 24 mo.

Effect of Low-Temperature Processing on Polysilicon Thin-Film Transistors Characteristics
Czubatyj, Wolodymyr; Energy Conversion Devices Inc., Troy, MI 48084
III 9022287 A000; 07/01/1992; $250,000; 24 mo.

Issues in Knowledge Based Assistance for IDEF3 Descriptions
de Witte, Paula; Knowledge Based Systems Inc., College Station, TX 77845-5424
III 9123380 A000; 09/01/1992; $249,778; 18 mo.

Engineering an Innovative System for Utilizing Organic Waste Materials in the Production of Grass Sods
Decker, Henry; Buckeye Bluegrass Farms Inc., Ostrander, OH 43061
III 8902053 A002; 09/01/1989; $3,959; 0 mo.

Engineering Canola Oil with Altered Fatty Acid Composition
Dooner, Hugo; DNA Plant Technologies Inc., Oakland, Oakland, CA 94608
III 9122871 A000; 06/15/1992; $249,572; 24 mo.

The Effects of Task Cues and Dominance Cues on Interactions in Groups
Driskell, James; Florida Maxima Corp., Winter Park, FL 32789
III 9114315 A000; 07/15/1992; $209,947; 24 mo.

Methods for Reducing the Blocking Artifact Observed in Images That Have Been Compressed Using Transform Coding and Vector Quantization
Farraelle, Paul; Optivision Inc., Palo Alto, CA 94303
III 9203073 A000; 09/01/1992; $250,000; 18 mo.

Intelligent Bus Extender Crossbar Network
Farraelle, Paul; Optivision Inc., Palo Alto, CA 94303
III 9203074 A000; 09/01/1992; $250,000; 24 mo.

Intrinsically Absorbing Polymers for Anti-Reflective Coating Applications
Flaim, Tony; Brewer Science Inc., Rolla, MO 65401
III 9204220 A000; 08/15/1992; $249,345; 24 mo.

Coherent, Laser-Remote Structural Analysis
Flusberg, Allen; Science Research Laboratory Inc., Somerville, MA 02143
III 9200079 A000; 08/15/1992; $252,796; 24 mo.

On-Site Electrochemical Peroxide Generator
Fraser, Mark; PSI Technology Company, Andover, MA 01810
III 9203023 A000; 09/01/1992; $166,027; 12 mo.

New Technology for the Formation of Sodium Hydroxide
Genders, J. David; Electrosynthesis Company Inc., Buffalo, NY 14227
III 9201888 A000; 09/01/1992; $249,999; 24 mo.

Application of Nonlinear Model-Based Predictive Control to Fossil Power Plants
Gibbs, Bruce; Coleman Research Corp., Orlando, FL 32819-8343
III 9121520 A000; 09/01/1992; $249,988; 18 mo.

An American-Sign-Language-to-English Recognition and Translation System
Girson, Andrew; Digital Video Processing Inc., Rockville, MD 20850
III 9022658 A002; 10/01/1991; $309; 0 mo
III 9022658 A003; 10/01/1991; $8,901; 0 mo.

Blue Phosphors for Thin-Film Electroluminescent Displays
Greenwald, Anton; Spire Corp., Bedford, MA 01730
III 9100144 A000; 09/01/1992; $249,988; 24 mo.

Ferroelectric Light Crystal/Very-Large-Scale Integration Hybrid Optoelectronic Devices: Silicon Retina with Optical Readout
Handschy, Mark; Displaytech Inc., Boulder, CO 80301
III 9116085 A000; 06/01/1992; $250,000; 24 mo.

Biomedical Instrumentation for Extracorporeal Shock-Wave Lithotripsy
Hartenbaum, Bruce; H Tech Laboratories Inc., Santa Monica, CA 90406
III 9105186 A000; 11/01/1991; $225,000; 24 mo.

Crystallographic Area Detector Software
Howard, Andrew; Enzon Inc., Gaithersburg, MD 20877
III 9022326 A000; 07/15/1991; $250,000; 24 mo.

High-Definition, Deformable-Membrane Projection Display System
Hubbard, James; Optron Systems Inc., Bedford, MA 01730
III 9113702 A000; 05/15/1992; $249,980; 24 mo.

System for In Situ Rehabilitation of Pipelines
Hunter, Robert; Yellowstone Environmental Science, Bozeman, MT 59715
III 9022356 A001; 05/01/1991; $4,563; 0 mo.

Mathematical Objects for Display and Computation
Hunter, Roger; TCI Software Research Inc., Las Cruces, NM 88001
III 9123095 A000; 06/01/1992; $250,000; 18 mo.

Large-Scale Displacement, High Performance Liquid Chromatography for Separation of Peptides and Proteins
Jacobson, Jana; BioWest Research, Grand Junction, CO 81502
III 9106502 A000; 06/15/1992; $258,237; 24 mo.

Ductile, Adherent Ceramic Coatings
Johnson, Edward; Spire Corp., Bedford, MA 01730
III 9100076 A000; 03/15/1991; $238,080; 24 mo.

Improving Productivity by Dose Equivalency Modeling
Kennedy, Robert; Essex Corp. Florida, Orlando, FL 32803
III 9122907 A000; 09/15/1992; $260,668; 24 mo.

Lightweight, Autonomous Dropwindsonde System for Unmanned Aircraft
Langford, John; Aurora Flight Sciences Corp., Manassas, VA 22111
III 9201775 A000; 10/01/1992; $250,000; 24 mo.

A Fiber Optic Fluoresence Detector for the Lithium Ion
Langmuir, Margaret; Covalent Associates Inc., Woburn, MA 01801
III 9022320 A001; 08/01/1991; $5,000; 0 mo.

Multiplexed, Holographic Fabry-Perot Resonators for Optical Communications and Processing Applications
Lin, Freddie; Physical Optics Corp., Torrance, CA 90501
III 9100147 A001; 08/01/1991; $4,472; 0 mo.

Ordering of Chromosome-Specific, Overlapping Cosmid Clones
MacConnell, William; MacConnell Research, San Diego, CA 92121
III 9122035 A000; 07/01/1992; $260,000; 24 mo.

Acclerated Growth of Red Abalone, *Haliotis Rufescens*, Through Triploidy
McCormick, Thomas; McCormick & Associates Inc., Berkeley, CA 94709
III 9112887 A000; 04/01/1992; $74,984; 12 mo.

Women in Science: A CD-Rom Multimedia Database
McLean, Lois; McLean Media, Mill Valley, CA 94941
III 9200281 A000; 09/15/1992; $246,439; 24 mo.
Jointly Funded with SPECIAL PROGRAMS $246,439

Aquaculture of Tropical Marine Sponges to Yield Research and Commercial Quanities of Bio-Active Secondary Metabolites for Bio-Technical Applications
Mendola, Dominick; California Bio-Marine Products, Encinitas, CA 92024
III 9214477 A000; 09/01/1992; $118,879; 12 mo.

High-Energy Electrons for the Treatment of Wastewater
Milde, Helmut; Ion Physics Corp., Atkinson, NH 03811
III 9102523 A000; 11/01/1991; $229,908; 24 mo.

Apparatus for Water Treatment by Application of High-Potential Gradients
Milde, Helmut; Ion Physics Corp., Atkinson, NH 03811
III 9206800 A000; 09/01/1992; $250,000; 1 mo.

Profiling Metabolites of Pome Fruit Maturation and Ripening by Innovative Immunochemical Methods
Miller, Brinton; Dixon-Holland, Deborah; Neogen Corp., Lansing, MI 48912
III 9102180 A000; 03/01/1992; $248,239; 24 mo.

An Innovative Use of Pulsed-Power Technology for Separation of Minerals from Ores
Moeny, William; Tetra Corp., Albuquerque, NM 87109
III 9024821 A000; 08/01/1992; $249,916; 24 mo.

Protein Purification Using an Affinity Membrane
Muchmore, David; Bend Research Inc., Bend, OR 97701-8599
III 9100200 A000; 11/01/1991; $249,680; 24 mo.

Two-Dimensional, Guided-Wave Spatial Light Controller Based on SIMOX Processing and Germanium-Silicon Alloys
Namavar, Fereydoon; Spire Corp., Bedford, MA 01730
III 9200540 A000; 10/15/1992; $105,934; 24 mo.

Search and Retrieval Software and Toolkit for for Sociodemographic Data
Peterson, James; Sociometrics Corp., Los Altos, CA 94022
III 9113561 A000; 07/15/1992; $222,577; 24 mo.

Researching Support Materials for Geometry Education Software
Rasmussen, Steven; Key Curriculum Press, Berkeley, CA 94702
III 9203421 A000; 09/01/1992; $263,852; 24 mo.
Jointly Funded with INSTRUCTIONAL MATERIALS DEVELP and SPECIAL PROGRAMS $263,852

Phased Array Doppler Current Profiler
Rowe, Francis; RD Instruments, San Diego, CA 92131
III 9114687 A000; 05/01/1992; $237,944; 15 mo.

Investigation of Liquid Crystal Polarization Controller for Coherent Fiber-Optic Communication Systems
Rumbaugh, Scott; Apeldyn Corp., Portland, OR 97204
III 9208665 A000; 08/15/1992; $249,960; 24 mo.

III-V Heterostructures on Silicon Substrates Prepared by OMCVD for Electronic and Photonic Applications
Salerno, Jack; Kopin Corp., Taunton, MA 02780
III 9110426 A000; 08/01/1992; $249,730; 24 mo.

Mixed Conducting Membrances for Nox Decomposition in Automobile Exhausts
Sammells, Anthony; Eltron Research Inc., Aurora, IL 60504
III 9200988 A000; 08/15/1992; $249,994; 24 mo.

Feasibility of Lumpfish (Clyclopterus Lumps) Culture
Sawyer, Evelyn; Sawyer, Phillip; Sea Run Holdings Inc., Kennebunkport, ME 04046
III 9112026 A000; 10/15/1991; $74,400; 12 mo.

Measurements and Modeling of the Behavior of Charring Polymers in Fires
Serio, Michael; Advanced Fuel Research Inc., East Hartford, CT 06138-0379
III 9101585 A000; 07/01/1992; $248,879; 24 mo.

Integrating Numerical Software Libraries with an Interactive Scientific Computing Evironment
Sherman, Andrew; Scientific Computing Associates Inc., New Haven, CT 06510
III 9116710 A000; 08/01/1992; $249,486; 24 mo.

A New Method of Time-Temperature Modeling of Sedimentary Basins
Solomon, Peter; Advanced Fuel Research Inc., East Hartford, CT 06138-0379
III 9203467 A000; 08/01/1992; $246,988; 24 mo.

Real-Time, Long-Term Monitoring of Volcanic Emissions
Stetter, Joseph; Transducer Research Inc., Naperville, IL 60540
III 9122891 A000; 07/15/1992; $264,097; 24 mo.

Investigation of Thunderstorm Winds with Respect to Wind Load Design Criteria and the Safety of Structures
Twisdale, Lawrence; Applied Research Associates Inc., Raleigh, NC 27615
III 9117048 A000; 07/15/1992; $224,935; 18 mo.

Membrane-Based Process for the Synthesis of Chiral Pyrethroids
van Eikeren, Paul; Bend Research Inc., Bend, OR 97701-8599
III 9109179 A000; 06/01/1992; $134,816; 12 mo.

Novel Membrane-Based Process for the Production of Substituted Benzyl Alcohols
van Eikeren, Paul; Bend Research Inc., Bend, OR 97701-8599
III 9122743 A000; 08/15/1992; $249,977; 24 mo.

Laser-Driven Directional Solidification in High Tc Superconducting Polycrystalline Fibers
Varshney, Usha; American Research Corp. of Virginia, Radford, VA 24143-3406
III 9101565 A001; 08/01/1991; $10,000; 0 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT and HUMAN RESOURCES DEVELOPMENT $7,500

Gallium Arsenide Readout and Preprocessing Electronics for Linear One-Dimensional and Two-Dimensional Infrared Focal Plane Array Sensors
Vu, Tho; Top-Vu Technology Inc., New Brighton, MN 55112
III 9022291 A002; 09/01/1991; $10,000; 0 mo.

Picoliter Solder Droplet Dispensing for Electronics Manufacturing
Wallace, David; MicroFab Technologies Inc., Plano, TX 75074
III 9203071 A000; 10/01/1992; $126,791; 24 mo.

Single Instruction, Stream Multiple Data Stream (SIMD) Parallel Algorithms for Nested Relational Database Implementation
Wehrmeister, Robert; Data Parallel Systems Inc., Bloomington, IN 47402
III 9007370 A001; 04/01/1991; $127,102; 12 mo.

Robot Vision System Based on Log-Polar Image Plane Coordinates
Weiman, Carl F.; Transitions Research Corp., Danbury, CT 06810
III 9122204 A000; 10/01/1992; $249,962; 18 mo.

Special Studies and Assessments

Assessment of Research and Development in Japan and Europe
Shelton, R. Duane; Loyola College in Maryland, Baltimore, MD 21210
ENG 9111333 A002; 08/01/1991; $448,750; 0 mo.
Jointly Funded with OCEAN ENGINEERING SYSTEMS and SEPAR & PURIFICATION PROCESSES $70,000

Observational Procedure for Construction on Soft Ground
Edil, Tuncer; University of Wisconsin-Madison, Madison, WI 53706
MSS 9115315 A001; 11/01/1991; $7,580; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $5,000

The Making of an Engineer: Learning from International Comparisons
Freiman, Charles; United Engineering Trustees Inc., New York, NY 10017
ENG 9215021 A000; 07/01/1992; $15,000; 12 mo.

Thomas A. Edison Papers
Jenkins, Reese; Rutgers University-New Brunswick, New Brunswick, NJ 08903
SBE 9112303 A001; 08/15/1991; $100,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $35,000

Ketron's Proposal for the Operation and Management of a Japanese Scientific and Engineering Information Database Access Project
Knies, David; Ketron Inc.-Wayne, Wayne, PA 19087
NCR 9003769 A003; 01/15/1990; $16,500; 3 mo.
Jointly Funded with SPECIAL PROGRAMS $16,500
NCR 9003769 A004; 01/15/1990; $69,300; 9 mo.
Jointly Funded with SPECIAL PROGRAMS $16,100

Development of Engineering Accreditation in Mexico/Program Evaluator Training Program
Reyes-Guerra, David; Accreditation Board for Eng. & Tech. Inc., New York, NY 10017
ENG 9222665 A000; 09/15/1992; $5,000; 1 mo.

Inventory of Materials Research and Development
Schneider, Samuel J.; Schwartz, Lyle; National Institute of Standards and Technology, Gaithersburg, MD 20899
DMR 9020900 A002; 09/01/1990; $32,000; 6 mo.
Jointly Funded with SPECIAL PROGRAMS and PROJECTS $6,000

Assessment of Research and Development in Japan and Europe
Shelton, R. Duane; Loyola College in Maryland, Baltimore, MD 21210
ENG 9111333 A002; 08/01/1991; $448,750; 0 mo.
Jointly Funded with OCEAN ENGINEERING SYSTEMS and SEPAR & PURIFICATION PROCESSES $70,000

Assessment of International Research and Development
Shelton, R. Duane; DeHaemer, Michael; Loyola College in Maryland, Baltimore, MD 21210
ENG 9217849 A000; 07/15/1992; $547,000; 24 mo.
Jointly Funded with AIR FORCE-JAPANESE R&D IN DISP and DOD-SYSTEMS TECHNOLOGY $6,054

U.S. Participation in International Engineering Organizations
Tollerton, Harry; Bradley, Mitchell; American Association of Engineering Societies Inc., Washington, DC 20002
ENG 9207939 A000; 09/01/1992; $75,000; 12 mo.

NSF/DARPA Agreement for Use of DARPA VLSI Implementation
Toole, John; Department of Defense Defense Advanced Research Projects Agency, Arlington, VA 22209
MIP 9015601 A002; 10/01/1990; $903,635; 12 mo.
Jointly Funded with EXPERIMENTAL SYSTEMS PROGRAM and CIRCUITS & SIGNAL PROCESSING $87,005

U.S. Participation in International Council of Scientific Unions
Treichel, Mary; National Academy of Sciences, Washington, DC 20418
INT 9016207 A004; 07/01/1990; $1,567,539; 10 mo.
Jointly Funded with SPECIAL PROGRAMS and PROJECTS $193,229

MECHANICAL AND STRUCTURAL SYSTEMS

Applied Mathematics

The Development of Continuum Mechanics and Material Behavior
Fosdick, Roger; University of Minnesota Institute of Technology, Minneapolis, MN 55455
MSS 9024637 A001; 07/01/1991; $45,000; 12 mo.

Cross-Directorate Programs

Cone Penetration Testing in Cemented Sands
Acar, Yalcin; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
MSS 9020368 A002; 03/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Research Initiation Award: An Object-Oriented Model for Engineering Applications Using a Geographic Database
Adams, Teresa; University of Wisconsin-Madison, Madison, WI 53706
MSS 9010587 A001; 07/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

Architecture, Environment, and Energy: Synthesis and Assessment
Allen, Barbara; University of Southwestern Louisiana, Lafayette, LA 70504
MSS 9209971 A000; 08/01/1992; $16,984; 14 mo.

A Decomposition Strategy for Optimization of Reinforced Concrete Systems
Balling, Richard; Wilson, Arnold; Brigham Young University, Provo, UT 84602
MSS 8914238 A002; 11/15/1989; $4,992; 6 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,992

Nonlinear and Probabilistic Theory for Concrete Creep
Bazant, Zdenek; Northwestern University, Evanston, IL 60208
MSS 8815166 A006; 01/01/1989; $10,000; 0 mo.

Presidential Young Investigator Award
Benson, Craig; University of Wisconsin-Madison, Madison, WI 53706
MSS 9157116 A002; 07/01/1991; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Structure of the Hagia Sophia from the Age of Justinian to the Present
Cakmak, Ahmet; Mark, Robert; Princeton University, Princeton, NJ 08544
MSS 9001601 A002; 06/01/1990; $4,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,500

Development and Experimental Verification of a Practical Robust-Control Technique for Flexible Mechanical Systems
Chait, Yossi; University of Massachusetts-Amherst, Amherst, MA 01003
MSS 8920628 A004; 06/01/1990; $4,000; 0 mo.

Analytical and Experimental Investigations of Elastic-Plastic Fracture in Solids
Chao, Yuh; Sutton, Michael; University of South Carolina at Columbia, Columbia, SC 29208
MSS 9003973 A003; 07/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

A Nonlinear Sensistivity Analysis Approach for Composites Under Large Deformations
Chattopadhyay, Aditi; Arizona State University, Tempe, AZ 85287
MSS 9209961 A000; 08/01/1992; $17,999; 18 mo.

Flexural Cracking in Landfill Caps
Cheng, S. Jonathan; Larralde-Muro, Jesus; Martin, Joseph; Drexel University, Philadelphia, PA 19104
MSS 9115197 A001; 10/01/1991; $9,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $9,000

Experimental and Numerical Study of Room Air and Air Contaminant Distribution
Christianson, Leslie; Riskowski, Gerald; Wu, Gwojenn; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9002513 A002; 11/15/1990; $8,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,438

Research Initiation Award: An Analytical Model for the Mechanical Response of a Ligament
Conway, Ted; University of Akron, Akron, OH 44325
MSS 9209974 A000; 09/01/1992; $93,154; 36 mo.

Structural System Reliability and Optimization - Incorporating Nonlinear Mechanics in Mathematical Programming Approaches
Corotis, Ross; Ramirez, Martin; Johns Hopkins University, Baltimore, MD 21218
MSS 9016018 A002; 02/15/1991; $4,672; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,672

Mechanism of Wear of Semiconductors and Ceramics
Danyluk, Steven; Lawn, Brian; University of Illinois at Chicago, Chicago, IL 60680
MSS 8714491 A006; 01/01/1988; $5,000; 6 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

An Investigation into Methods for Expediting the Transfer of CAD and KBES Technologies for Improved Construction Estimating
De La Garza, Jesus; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 8908570 A001; 08/01/1989; $5,000; 4 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Application of Artificial Intelligence Techniques to Develop Computer-Aided Value Engineering (CAVE) Technology
De La Garza, Jesus; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9215722 A000; 08/01/1992; $60,000; 12 mo.

The Mechanics and Physics of Fracture in Ice
Dempsey, John; Clarkson University, Potsdam, NY 13676
MSS 9007929 A002; 08/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Testing and Modelling of Saturated Interfaces Under Cyclic Loading
Desai, Chandrakant; Armaleh, Sonia; University of Arizona, Tucson, AZ 85721
MSS 9115316 A000; 07/15/1992; $64,429; 12 mo.

Anchorage for Synthetic Prestressing Tendons
Dolan, Charles; University of Wyoming, Laramie, WY 82071
MSS 9114592 A001; 12/15/1991; $10,000; 0 mo.

Research Initiation Award: Distributed Parameter Control of Flexible Multibody Systems
Downer, Janice; University of Wisconsin-Madison, Madison, WI 53706
MSS 9209594 A000; 08/15/1992; $37,310; 12 mo.

Research Initiation Award: Neural Network Analysis of Granular Fabric
Ellis, Glenn; Clarkson University, Potsdam, NY 13676
MSS 9110287 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Kinemataic and Dynamic Accuracy Performance Synthesis for Planar and Spatial Mechanisms
Erdman, Arthur; University of Minnesota-Twin Cities, Minneapolis, MN 55415
MSS 9012456 A001; 08/01/1990; $65,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Sampling of Ionic Contaminants in Soils Through an Electrolytic Injection Technique
Feldkamp, Joseph; Lewis, Barbara-Ann; Northwestern University, Evanston, IL 60208
MSS 9122667 A000; 05/15/1992; $34,958; 12 mo.

Research Initiation Award: Magnetostrictive Actuator Development for Vibration Control in Structures
Flatau, Allison; Iowa State University, Ames, IA 50011
MSS 9212065 A000; 08/01/1992; $33,664; 12 mo.

The Influence of Freezing and Thawing on the Permeability of Compacted Clays
Fleming, Lorraine; Howard University College of Medicine, Washington, DC 20059
MSS 9201547 A000; 08/15/1992; $31,238; 12 mo.

Research Initiation Award: Evaluation of Cohesionless Soil Uniformity and Fabric Using Image Analysis (REU Supplement)
Frost, J. David; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9011232 A001; 09/01/1990; $788; 8 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $788

Research Initiation Award: Evaluation of Cohesionless Soil Uniformity and Fabric Using Image Analysis (REU Supplement)
Frost, J. David; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9296259 A000; 09/01/1992; $25,200; 5 mo.
Jointly Funded with GEOMECHAN, GEOTECH, AND GEOENVIRN and HUMAN RESOURCES DEVELOPMENT $8,750

Buckminsterfullerene-Ion Assisted Deposition of Thin Films
Gibson, Ursula; Dartmouth College, Hanover, NH 03755
MSS 9200606 A000; 03/15/1992; $35,000; 12 mo.

Micromechanical Modelling of Natural Materials
Gibson, Lorna; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9202202 A000; 09/01/1992; $209,765; 36 mo.

Centrifuge and Full-Scale Modelling of Geotextile Reinforced Cohesive Soil Structures
Goodings, Deborah; University of Maryland-College Park, College Park, MD 20742
MSS 9203089 A000; 05/01/1992; $51,294; 12 mo.

Molecular Tribology of Lubricants and Additives
Granick, Steve; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9202143 A001; 02/15/1992; $5,000; 0 mo.

Scattering from Partially Closed Cracks and Other Imperfect Interfaces
Harris, John; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9114547 A001; 09/01/1991; $5,000; 0 mo.

Evaluation of Condition of Structures from Transient Response
Hearn, George; University of Colorado at Boulder, Boulder, CO 80309
MSS 9102379 A001; 05/01/1991; $2,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $2,500

Research Initiation Award: Resonating Anisotropic Solids: Novel Elastic Constant Measurements (REU Supplement)
Heyliger, Paul; Colorado State University, Fort Collins, CO 80523
MSS 9010099 A002; 09/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

Seismic Cone Tests in a Particulate Assembly
Huang, An-Bin; Lee, Jong; Clarkson University, Potsdam, NY 13676
MSS 9021973 A001; 07/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Development of Hybrid Discrete-Element/Finite-Element Model for Large Deformation Geotechnical Engineering Problems
Ishibashi, Isao; Nguyen, Duc; Old Dominion University Research Foundation, Norfolk, VA 235080369
MSS 8920878 A001; 08/15/1990; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Research Initiation Award: Analytical and Experimental Modeling of Acoustic Emission Signals
Jacobs, Laurence; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9111339 A001; 07/15/1991; $7,450; 0 mo.

Presidential Young Investigator Award
Jones, James; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 8957191 A003; 10/01/1989; $11,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $9,878

Development of Resistance Models for Wood Formworks
Karshenas, Saeed; Marquette University, Milwaukee, WI 53233
MSS 9002571 A001; 12/01/1990; $5,000; 0 mo.

Research Initiation Award: Structural Relaxations in Glass-Forming Oxide Melts
Kieffer, John; University of Illinois at Chicago, Chicago, IL 60680
MSS 9008918 A001; 07/01/1990; $8,001; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $6,001

Constitutive Modeling of Cemented Soils
Kiousis, Panos; University of Arizona, Tucson, AZ 85721
MSS 9021687 A001; 02/15/1991; $5,000; 0 mo.

Research Initiation Award: Geomechanical Investigation of Time Dependence of In-Situ Stresses in Soils
Kumbhojkar, Arvind; University of Miami, Coral Gables, FL
MSS 9009156 A002; 08/15/1990; $8,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,000

Research Initiation Award: One-Dimensional and Multi-Dimensional Stress-State Analyses of Wetting-Induced Collapse in Unsaturated Soils
Lawton, Evert; University of Utah, Salt Lake City, UT 84112
MSS 9196241 A001; 08/15/1991; $10,000; 6 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

Research Initiation Award: Coupled Magneto-Thermo-Mechanical Behavior of Superconducting Composites
Lee, Jong; Clarkson University, Potsdam, NY 13676
MSS 9009490 A001; 05/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Fracture Testing Technology for Advanced Ceramic and Cementitious Matrix Based Composites
Li, Victor; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9019156 A001; 08/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Passive, Smart-Cementitious Composites for Dynamic Control Structures: Internal Timed Release of Chemicals for Self-Repair of Crack Damage
Li, Victor; Dry, Carolyn; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9202097 A000; 09/15/1992; $150,000; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS and SPECIAL PROGRAMS $100,639

Research Initiation Award: Dynamic Behavior and Response of Truss Structures After the Onset of Progressive Collapse
Malla, Ramesh; University of Connecticut, Storrs, CT 06268
MSS 9110900 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Presidential Young Investigator Award
McGee, Oliver; Ohio State University Research Foundation, Columbus, OH 43210
MSS 9157972 A001; 07/15/1991; $10,000; 0 mo.

Kinematic Wave Formulation for Flow-Through Macroporous Soil
Miller, Carol; Wayne State University, Detroit, MI 48202
MSS 9123563 A000; 06/01/1992; $41,121; 12 mo.

Intelligent Material Handling Systems: Integrated Modelling and Control for Intelligent Material Handling
Mitchell, Owen; Harbison-Briggs, Karan; Lewis, Frank; University of Texas at Arlington, Arlington, TX 76019
MSS 9114009 A001; 09/01/1991; $15,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $12,500

Research Initiation Award: Development of Fatigue-Resistant Low-Activation Materials for Fusion Reactor Applications
Morrison, David; Clarkson University, Potsdam, NY 13676
MSS 9108695 A001; 09/01/1991; $9,500; 0 mo.

Lateral Confinement of Concrete Using High-Strength Fiber Reinforcement
Nanni, Antonio; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9108598 A002; 09/15/1991; $9,822; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,595

Development of Hybrid (FRP and Steel) Reinforcement
Nanni, Antonio; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9120371 A001; 12/15/1991; $4,875; 0 mo.

Modelling of Penetration Resistance and Static Capacity of Piles Driven by Vibration (REU Supplement)
O'Neill, Michael; Vipulanandan, Cumaraswamy; University of Houston, Houston, TX 77204
MSS 8920412 A002; 08/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Asymptotic Modal Analysis for Damped Structural-Acoustic Systems
Peretti, Linda; Duke University, Durham, NC 27708
MSS 9209970 A000; 08/01/1992; $17,999; 14 mo.

Research Initiation: Three-Dimensional Fracture Analysis of Rubber Composite Structures
Pidaparti, Ramana; Indiana University-Bloomington, Bloomington, IN 47405
MSS 9109683 A001; 08/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Statistical Approach to Sliding Wear of Ceramic Reinforced Metal Matrix Composite/Metal Systems
Rack, Henry; Clemson University, Clemson, SC 29634
MSS 9114851 A001; 02/15/1992; $4,000; 0 mo.

Presidential Young Investigator Award: Engineering Design Database Research
Rasdorf, William; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
MSS 8451465 A009; 09/15/1985; $50,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $12,500

Presidential Young Investigator Award
Rogers, Craig; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9157080 A001; 07/15/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

Advanced Cement Matrix Materials: Synthesis and Processing of Alkali-Activated Cements
Roy, Della; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9123239 A000; 07/01/1992; $70,000; 12 mo.

The Mechanics of Surface Modification for Rolling Element Performance
Rubin, Carol; Hahn, George; Vanderbilt University, Nashville, TN 37240
MSS 9203252 A000; 07/15/1992; $186,030; 36 mo.
Jointly Funded with MATERIALS ENGINEERING $101,000

Research Initiation Award: Elm Waves in Environmental Geotechnology: Fundamental Study and Applications
Santamarina, J. Carlos; University of Waterloo, Waterloo, CA 00000
MSS 9296133 A000; 06/07/1992; $4,800; 7 mo.

Presidential Young Investigator Award
Sanvido, Victor; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9058545 A003; 08/15/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

An Evaluation of the Leachability of Heavy Metals from Fly Ash Liner Materials
Shackelford, Charles; Colorado State University, Fort Collins, CO 80523
MSS 8908201 A002; 09/01/1989; $10,000; 6 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

A Study of Biaxial Strains at Notch Roots at High Temperature
Sharpe, William; Johns Hopkins University, Baltimore, MD 21218
MSS 9016817 A001; 04/01/1991; $5,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $5,000

Research Initiation Award: On-line Computation of High Speed Robot Motions
Shiller, Zvi; University of California-Los Angeles, Los Angeles, CA 90024
MSS 9009391 A001; 06/01/1990; $10,000; 0 mo.

Research Initiation Award: Synthesis and Properties of Electrochemically Processed Nanocrystalline and Fiber-Reinforced Composities
Singh, Raj; University of Cincinnati-Main Campus, Cincinnati, OH 45221
MSS 9108912 A001; 07/15/1991; $9,000; 0 mo.

Research Initiation Award: The Role of Lubricant Viscosity in the Frictional Behavior of the Magnetic Slider/Disk
Streator, Jeffrey; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9110469 A001; 07/15/1991; $4,606; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $4,606

Presidential Young Investigator Award
Synolakis, Costas; University of Southern California, Los Angeles, CA 90089
MSS 8957853 A003; 08/01/1989; $9,059; 0 mo.

Scheduling Construction Projects by Using Product Models and Learning from Cases
Tommelein, Iris; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9215935 A000; 08/01/1992; $62,774; 12 mo.

Preliminary Research on the Safety of Steel Connections Using System Reliability Techniques
Trautner, Janice; University of Utah, Salt Lake City, UT 84112
MSS 9109024 A000; 12/15/1991; $18,000; 18 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $18,000

Analytical Study and Experimental Verification of a Coupled Theory of Mixtures and Micropolar Continua for Geomechanical Application
Voyiadjis, George; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
MSS 9018249 A003; 02/01/1991; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $10,000

Fundamental Aspects of the Behavior of Saturated Soils Under Undrained Cyclic Loads
Vucetic, Mladen; University of California-Los Angeles, Los Angeles, CA 90024
MSS 8922170 A001; 08/15/1990; $5,000; 0 mo.

Fractal Analysis of Branched Structures on Fractured Surfaces of Crosslinked Polymers and Model Systems
Wunder, Stephanie; Temple University, Philadelphia, PA 19122
MSS 9210713 A000; 08/01/1992; $60,000; 12 mo.

Flow Channeling in Soft Clays
Znidarcic, Dobroslav; University of Colorado at Boulder, Boulder, CO 80309
MSS 9102223 A001; 07/15/1991; $8,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,000

Behavior of Axially Loaded, Pultruded, Fiber-Reinforced Composite Columns
Zureick, Abdul-Hamid; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 8909140 A002; 06/01/1989; $6,602; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $6,602

Presidential Young Investigators Award
Sanvido, Victor; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9058545 A003; 08/15/1990; $10,000; 0 mo.

Dynamic Systems and Control Program

Dynamic Systems and Control

Damping of Dynamic Systems by Means of Thin-Fluid Layers and Jet-Flow Impingement
Akay, Adnan; Ingard, K.; Wayne State University, Detroit, MI 48202
MSS 9114523 A000; 11/01/1991; $69,997; 12 mo.

Intelligent Feedback Systems
Athans, Michael; Tsitsiklis, John; Massachusetts Institute of Technology, Cambridge, MA 02139
ECS 9216531 A000; 09/15/1992; $200,000; 36 mo.

H-Optimal Repetitive Control of Closed Loop Servohydraulic Testing
Busby, Henry; Ozbay, Hitay; Ohio State University Research Foundation, Columbus, OH 43210
MSS 9203418 A000; 07/01/1992; $80,008; 12 mo.

Intelligent Material Handling Systems: Intelligent Distributed Control of Material Handling
Canny, John; Malik, Jitendra; Fearing, Ronald; Adiga, Sadashiv; Mendel, Max; University of California-Berkeley, Berkeley, CA 94720
IRI 9114446 A000; 12/01/1991; $150,000; 12 mo.

Development and Experimental Verification of a Practical Robust Control Technique for Flexible Mechanical Systems
Chait, Yossi; University of Massachusetts-Amherst, Amherst, MA 01003
MSS 8920628 A003; 06/01/1990; $52,106; 12 mo.
MSS 8920628 A004; 06/01/1990; $4,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,000

Research Initiation Award: A New Approach to Minimum-Time Control of Multiple Interconnected Mechanical Systems (REU Supplement)
Chen, Yaobin; Indiana University-Bloomington, Bloomington, IN 47405
MSS 9109947 A001; 07/15/1991; $10,400; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,700

Research Initiation Award: Synthesis and Planning for the Grasps of Planar and Solid Objects
Chen, Yu-Che; University of Tulsa, Tulsa, OK 74104
MSS 9209512 A000; 09/01/1992; $28,639; 12 mo.

Dexterity Enhancement via Macro/Micro Bilateral Manipulation
Colgate, James; Northwestern University, Evanston, IL 60208
MSS 9022513 A001; 06/15/1991; $71,039; 12 mo.
MSS 9022513 A002; 06/15/1991; $8,875; 0 mo.

Presidential Young Investigator Award
Corless, Martin; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9057079 A001; 08/15/1990; $25,000; 12 mo.

Support for Second International Congress on Sound and Vibration
Crocker, Malcolm; Raju, P.; Auburn University, Auburn, AL 36849
MSS 9213297 A000; 05/01/1992; $16,000; 12 mo.

Fault Diagnosis with Process Uncertainty
Danai, Kourosh; University of Massachusetts-Amherst, Amherst, MA 01003
MSS 9102149 A001; 06/01/1991; $64,600; 12 mo.

Intelligent Material Handling Systems: Behavior-Based Control for Autonomous Tending of Manufacturing Workcells
Donath, Max; Ramalingam, Subbiah; University of Minnesota-Twin Cities, Minneapolis, MN 55415
MSS 9113802 A000; 02/15/1992; $150,000; 12 mo.
Jointly Funded with ENGINEERING DESIGN and ROBOTICS AND MACHINE INTELLIGE $125,000

REG: Equipment to Modernize a Subsonic Wind Tunnel for Gust Simulation and Measurement
Dowell, Earl; Tang, Deman; Duke University, Durham, NC 27708
MSS 9212953 A000; 09/01/1992; $19,526; 12 mo.

Evaluation of the Use of the Wavelet Transform for Analysis of Mechanical Transients
Dowling, Martin; Liberty Technologies, Conshohocken, PA 19428
III 9160156 A000; 01/01/1992; $50,000; 6 mo.

Research Initiation Award: Distributed Parameter Control of Flexible Multibody Systems
Downer, Janice; University of Wisconsin-Madison, Madison, WI 53706
MSS 9209594 A000; 08/15/1992; $37,310; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $18,655

Fifth Annual Workshop on Aerospace Computational Control; Santa Barbara, CA
Doyle, John; Man, Guy; California Institute of Technology, Pasadena, CA 91125
MSS 9220553 A000; 09/15/1992; $9,952; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $9,952

Dynamic Modeling Methods for the Design of High Performance Machines
Dubowsky, Steven; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9023487 A001; 06/01/1991; $86,466; 12 mo.

Kinemataic and Dynamic Accuracy Performance Synthesis for Planar and Spatial Mechanisms
Erdman, Arthur; University of Minnesota-Twin Cities, Minneapolis, MN 55415
MSS 9012456 A001; 08/01/1990; $65,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000

Neural Network Fuzzy Adaptive Control
Esogbue, Augustine; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
ECS 9216004 A000; 09/15/1992; $133,838; 36 mo.

Analysis of Multiple-Degree-of-Freedom Ship Rolling Motion Using Geometric Methods
Falzarano, Jeffrey; University of New Orleans, New Orleans, LA 70148
MSS 9203429 A000; 09/01/1992; $29,952; 12 mo.

RUI: A Method for Uncoupling and Solving the Equations of Motion of Vibrating Linear Discrete Systems
Felszeghy, Stephen; California State LA University Auxiliary Services Inc., Los Angeles, CA 90032
MSS 9202660 A000; 08/15/1992; $27,620; 12 mo.

Walking Machine Design Based on Certain Aspects of Arthropod Legs
Fichter, Eugene; Fichter, Becky; Oregon State University, Corvallis, OR 97331-5503
MSS 9114521 A000; 11/15/1991; $99,999; 12 mo.
MSS 9114521 A001; 11/15/1991; $9,430; 0 mo.

Acoustic Monitoring of Beams
Finch, Robert; Jansen, Ben; University of Houston, Houston, TX 77204
MSS 9024224 A001; 06/01/1991; $72,094; 12 mo.

Research Initiation Award: Magnetostrictive Actuator Development for Vibration Control in Structures
Flatau, Allison; Iowa State University, Ames, IA 50011
MSS 9212065 A000; 08/01/1992; $33,664; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $16,832

On the Kinematics, Dynamics and Design Optimization of Basic Mechanical Components and Systems
Freudenstein, Ferdinand; Columbia University, New York, NY 10027
MSS 8905803 A002; 09/01/1989; $63,655; 12 mo.

Research Initiation Award: Computer-Aided Geometric Design and Motion Synthesis
Ge, Qiaode Jeffrey; University of New Orleans, New Orleans, LA 70148
MSS 9211490 A000; 08/15/1992; $33,038; 12 mo.

Workshop on Geometric Uncertainty in Motion Planning, June 15-17, 1992, USC Marine Science Center, Catalina, California
Goldberg, Kenneth; University of Southern California, Los Angeles, CA 90089
IRI 9208161 A000; 03/15/1992; $14,330; 12 mo.

Performace Evaluation of Vehicles with Semi-Active Suspensions, Including Body Compliance
Hac, Aleksander; Chen, Hsien; SUNY at Stony Brook, Stony Brook, NY 11794-0001
MSS 9213539 A000; 07/15/1992; $15,575; 3 mo.

Block Travel for: 12th World Congress - International Federation of Automatic Control to be held in Sydney, Australia July 19-23, l993
Haddad, A.; Northwestern University, Evanston, IL 60208
ECS 9215458 A000; 01/15/1993; $30,000; 12 mo.
Jointly Funded with POWER SYSTEMS $10,000

Research Initiation Award: Condition Monitoring and Control: An Integrated, System-Theoretic Approach
Helmicki, Arthur; University of Cincinnati-Main Campus, Cincinnati, OH 45221
MSS 9210178 A000; 09/01/1992; $30,000; 36 mo.

Research Initiation Award: Dynamic Loosening and Tightening of Threaded Fasteners by Vibration
Hess, Daniel; University of South Florida, Tampa, FL 33620
MSS 9210331 A000; 09/01/1992; $27,831; 12 mo.

Development of Space-Time Finite Elements for Nonlinear Transient Response of Flexible Structures
Hodges, Dewey; Peters, David; Georgia Tech Research Corporation - GA Tech Research Institute, Atlanta, GA 30332
MSS 8822003 A002; 11/15/1989; $53,504; 12 mo.

Research Initiation Award: Feedback Controller Design of Active Sound Cancellation Using Close-Form Transfer Function Models
Hu, Jwu-Sheng; Wayne State University, Detroit, MI 48202
MSS 9210756 A000; 08/15/1992; $39,244; 12 mo.

Experimental and Theoretical Study of Rigid Body Collisions of Robotic Systems
Hurmuzlu, Yildirim; Southern Methodist University, Dallas, TX 75275
MSS 9203097 A000; 06/01/1992; $113,919; 12 mo.

Computational Methods in Multibody System Dynamics
Huston, Ronald; University of Cincinnati-Main Campus, Cincinnati, OH 45221
MSS 8912521 A003; 11/15/1989; $68,000; 12 mo.

Random Excitation of Dynamic Systems with Multiple Internal Resonances
Ibrahim, Raouf; Wayne State University, Detroit, MI 48202
MSS 9203733 A000; 07/15/1992; $42,443; 12 mo.

Model Correction Using Experimental Data
Inman, Daniel; SUNY at Buffalo, Buffalo, NY 14260
MSS 9021989 A000; 11/01/1991; $61,375; 12 mo.

A Robust Control System Design Methodology for Mechanical Systems
Jayasuriya, Suhada; Texas A&M University Research Foundation, College Station, TX 77843
MSS 9114562 A000; 11/01/1991; $60,000; 12 mo.
MSS 9114562 A001; 11/01/1991; $68,245; 12 mo.

In-Process Control of Turned Threads
Johnson, James; Netrologic Inc., San Diego, CA 92122-5932
III 9161412 A000; 01/01/1992; $50,000; 6 mo.

Presidential Young Investigator Award
Jones, James; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 8957191 A003; 10/01/1989; $11,500; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $9,878

A Theoretical and Experimental Study on Augmenting Human Motor-Cognitive Ability via Human-Robot Interaction
Kazerooni, Homayoon; University of California-Berkeley, Berkeley, CA 94720
MSS 9196179 A001; 09/01/1991; $79,686; 12 mo.
MSS 9196179 A002; 09/01/1991; $5,000; 0 mo.

Intelligent Control Concepts for Automatic Generation Control of Electric Power Systems
King, Roger; Luck, Rogelio; Mississippi State University, Mississippi State, MS 39762
ECS 9216549 A000; 09/15/1992; $133,838; 36 mo.
Jointly Funded with SYSTEMS THEORY $108,838

Qualitative Motion Synthesis and Simulation Using Kinematic Building Blocks - A Computational Approach
Kota, Sridhar; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
DDM 9103008 A001; 06/01/1991; $60,000; 12 mo.

The Fuzzy Point Syntheses of Mechanisms
Kramer, Steven; University of Toledo, Toledo, OH 43606
DDM 9202140 A000; 09/15/1992; $50,000; 12 mo.

Intelligent Control of Cutting Force in Three-Dimensional End Milling Operations Using Neural Networks
Krishnamurthy, K.; Lu, Wen; McMillin, Bruce; University of Missouri-Rolla, Rolla, MO 65401
MSS 9216479 A000; 09/01/1992; $200,000; 36 mo.
Jointly Funded with SYSTEMS THEORY $100,000

Presidential Young Investigator Award
Kumar, Vijay; University of Pennsylvania, Philadelphia, PA 19104
MSS 9157156 A001; 06/15/1991; $62,500; 12 mo.
MSS 9157156 A002; 06/15/1991; $12,392; 0 mo.

Decision Fusion and Extrapolation for Security Supervisor Control Systems
Kwatny, Harry; Fischl, Robert; Kam, Moshe; Drexel University, Philadelphia, PA 19104
ECS 9216588 A000; 09/15/1992; $200,000; 36 mo.
Jointly Funded with SYSTEMS THEORY $195,000

Acoustic Impedance Dynamics in Porous Media
Lambert, Robert; University of Minnesota-Twin Cities, Minneapolis, MN 55415
MSS 9022768 A001; 08/01/1991; $74,936; 12 mo.

Intelligent Control of Systems with Set-Partitioned Dynamics
Laub, Alan; Seborg, Dale; Kokotovic, Petar; Paden, Brad; Dahleh, Mohammed; University of California-Santa Barbara, Santa Barbara, CA 93106
MSS 9216690 A000; 09/15/1992; $200,000; 36 mo.
Jointly Funded with SYSTEMS THEORY $100,000

REG: Robotic Systems Control Research Lab
Lewis, Frank; University of Texas at Arlington, Arlington, TX 76019
MSS 9211970 A000; 08/15/1992; $20,000; 12 mo.

Research Initiation Award: Resonance Suppression Design by Moving Boundary and Eigenvalue Placement
Lin, Yuyi; University of Missouri-Columbia, Columbia, MO 65211
MSS 9211340 A000; 09/01/1992; $34,255; 12 mo.

NSF Young Investigator Award
Livne, Eliezer; University of Washington, Seattle, WA 98195
MSS 9258116 A000; 09/01/1992; $25,000; 12 mo.

Analytic Theory and Control of the Motion of Spinning Rigid Bodies
Longuski, James; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9114388 A001; 09/01/1991; $59,943; 12 mo.

Acoustic/Vibration Analysis Technique and Efficient Structural Modification for Noise Control
Mann, J.; Pate, Anna; Flatau, Allison; Iowa State University, Ames, IA 50011
MSS 9103377 A000; 06/15/1992; $68,286; 12 mo.

Motion Optimization and Design of Closed-Chain Robotic Systems
McCarthy, J. Michael; Bobrow, J.; University of California-Irvine, Irvine, CA 92717
MSS 9006667 A001; 12/15/1990; $75,545; 12 mo.

Control Problems for Nonholonomic Dynamic Systems
McClamroch, Nathaniel; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9114630 A000; 01/01/1992; $60,742; 12 mo.

Development of a Methodology for Compliant Mechanisms Design
Midha, Ashok; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 8902777 A002; 09/01/1989; $64,626; 12 mo.

Chaotic Dynamics of Elasto-Plastic Structures: Experiments and Novel Computational Methods
Moon, Francis; Mukherjee, Subrata; Cornell University - Endowed, Ithaca, NY 14853
MSS 9016626 A001; 04/01/1991; $75,000; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS $20,000

A Unified Education Curriculum for Freshman Engineers: Emphasizing Creativity and Conceptualization in Professional Engineer Preparation
Morgan, James; Prairie View A&M Research Foundation, Prairie View, TX 77446
MSS 9120678 A000; 05/15/1992; $50,000; 12 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $50,000

Vibration Control of Rotating Plates and Translating Bands
Mote, Clayton; University of California-Berkeley, Berkeley, CA 94720
MSS 9100386 A001; 07/01/1991; $77,827; 12 mo.

Experimental Studies in Mechanical Systems Under Harmonic and Stochastic Excitations
Namachchivaya, N. Sri; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9212959 A000; 10/01/1992; $40,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $40,000

Analytical/Numerical Procedures for Investigation of Rotor Systems with Strong Local Nonlinearities
Noah, Sherif; Texas A&M University Research Foundation, College Station, TX 77843
MSS 9202886 A000; 05/15/1992; $71,691; 12 mo.

REG: The Development of a Real-Time, Active-Chatter Control
Ousterhout, Karl; University of Arizona, Tucson, AZ 85721
MSS 9212551 A000; 09/01/1992; $17,576; 12 mo.

Asymptotic Modal Analysis for Damped Structural - Acoustic Systems
Peretti, Linda; Duke University, Durham, NC 27708
MSS 9209970 A000; 08/01/1992; $17,999; 14 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $9,000

Localization Phenomena in Structural Dynamics
Pierre, Christophe; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 8913196 A002; 01/15/1990; $69,601; 12 mo.

Detection of Cracks in Rotating Shafts - An Analytical and Experimental Investigation
Plaut, Raymond; Kirk, R. Gordon; Wicks, A.; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9114529 A000; 01/01/1992; $70,000; 12 mo.

Group Travel Grant to 1992 IEEE International Conference on Robotics and Automation: May 11-15, 1992, in Nice, France
Sanderson, Arthur; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
MSS 9203431 A000; 03/15/1992; $31,490; 12 mo.
Jointly Funded with PRODUCTION SYSTEMS and SYSTEMS THEORY $12,000

Decentralized Control for Structrural Uncertainties: Power Systems Applications
Sethares, William; Lasseter, Robert; Alvarado, Fernando; University of Wisconsin-Madison, Madison, WI 53706
ECS 9216520 A000; 09/15/1992; $200,000; 36 mo.
Jointly Funded with SYSTEMS THEORY $180,000

An Invariant Manifold Approach to Modal Analysis of Nonlinear Structural Systems
Shaw, Steven; Pierre, Christophe; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9201815 A000; 09/01/1992; $91,947; 12 mo.

Nonlinear Dynamics in Mechanical Systems
Shaw, Steven; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9296145 A001; 09/16/1991; $67,464; 12 mo.
Jointly Funded with LARGE STRUCTURAL AND BLDG SYSTMS $164

Research Initiation Award: On-line Computation of High-Speed Robot Motions
Shiller, Zvi; University of California-Los Angeles, Los Angeles, CA 90024
MSS 9009391 A001; 06/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $10,000

NSF Young Investigator Award
Smith, Suzanne; Kentucky Research Foundation, Lexington, KY 40506
MSS 9257633 A000; 09/01/1992; $25,000; 12 mo.

Instability Mechanisms in Adaptive Control of Robots and Teleoperators
Spong, Mark; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9100618 A001; 06/01/1991; $60,022; 12 mo.

REG: Vision System for Real-Time Control of a Robotic Manipulation
Spong, Mark; Hutchinson, Seth; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9212376 A000; 09/01/1992; $32,000; 12 mo.

Mobility Study of Multi-Degree-Of-Freedom Linkages
Ting, Kwun-Lon; Tennessee Technological University, Cookeville, TN 38505
MSS 9104672 A000; 12/01/1991; $95,446; 12 mo.

Nonlinear Periodic Systems with Mode Localization and Motion Confinement Characteristics
Vakakis, Alexander; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9207318 A000; 09/01/1992; $35,021; 12 mo.

Research Initiation Award: Control of Chaotic Impacting Oscillators
Virgin, Lawrence; Duke University, Durham, NC 27708
MSS 9209886 A000; 09/01/1992; $26,297; 12 mo.

Presidential Young Investigator Awards
Vu-Quoc, Loc; University of Florida, Gainesville, FL 32611
MSS 9057602 A003; 08/15/1990; $62,500; 12 mo.

Development of a Unified Kinematic Theory of Combination Serial and Parallel Mechanisms
Waldron, Kenneth; Ohio State University Research Foundation, Columbus, OH 43210
MSS 9004869 A001; 05/15/1991; $69,668; 12 mo.

Passive Feedback Control with Feedforward Compensation for Flexible Structures
Wen, John; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
MSS 9113633 A000; 12/15/1991; $62,636; 12 mo.

Presidential Young Investigator Award
Wiggins, Stephen; California Institute of Technology, Pasadena, CA 91125
MSS 8958344 A003; 08/01/1989; $25,000; 12 mo.

Monotone Control of Discrete-Event Systems
Yao, David; Glasserman, Paul; Columbia University, New York, NY 10027
MSS 9216490 A000; 09/01/1992; $200,000; 36 mo.
Jointly Funded with SYSTEMS THEORY $100,000

Time-Delay-Control Theory and Applications
Youcef-Toumi, Kamal; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9114595 A000; 10/01/1992; $55,000; 12 mo.

Conference on Nondestructive Evaluation of Civil Structures and Materials
Sture, Stein; Suprenant, Bruce; University of Colorado at Boulder, Boulder, CO 80309
MSS 9113680 A001; 05/15/1991; $9,999; 0 mo.
Jointly Funded with FEDERAL HIGHWAY ADMINISTRATION $9,999

Mechanics and Materials Program

Materials Engineering

Research Initiation Award: Coupled Experimental and Analytical Assessment of Three-Dimensionally Reinforced Composite Materials
Adams, Daniel; Iowa State University, Ames, IA 50011
MSS 9211684 A000; 08/15/1992; $100,000; 36 mo.

Single Crystal Superalloys: Constitutive Equations and Computational Procedures
Anand, Lallit; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9215152 A000; 09/01/1992; $240,000; 36 mo.

Control of Microstructure Against Strain Localization During Deformation Processing
Bassani, John; Ponte-Castaneda, Pedro; Laird, Campbell; University of Pennsylvania, Philadelphia, PA 19104
MSS 9202513 A000; 09/01/1992; $400,000; 36 mo.

Modeling and Characterization of Materials for Dynamic Metal Working Processes
Batra, Romesh; University of Missouri-Rolla, Rolla, MO 65401
MSS 9121279 A001; 08/15/1991; $55,000; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT $40,000

Presidential Young Investigator Award: Mechanical Properties of Thin Films
Blanchard, James; University of Wisconsin-Madison, Madison, WI 53706
MSS 9058420 A002; 07/01/1990; $47,500; 12 mo.

Presidential Young Investigator Awards
Charalambides, Panayiotis; Michigan Technological University, Houghton, MI 49931
MSS 9157090 A001; 09/01/1991; $52,377; 12 mo.

A Nonlinear Sensistivity Analysis Approach for Composites Under Large Deformations
Chattopadhyay, Aditi; Arizona State University, Tempe, AZ 85287
MSS 9209961 A000; 08/01/1992; $17,999; 18 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $9,000

Presidential Young Investigator Awards
Chona, Ravinder; Texas A&M University Research Foundation, College Station, TX 77843
MSS 9157988 A001; 09/01/1991; $62,500; 12 mo.

Significance of Paste-Sand Interfaces in Micromechanical Behavior of Concrete
Cohen, Menashi; Chen, Wai-Fah; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9202134 A000; 07/01/1992; $45,950; 12 mo.

Research Initiation Award: Investigation of Fracture of Bimaterial Interfaces
Davidson, Barry; Syracuse University, Syracuse, NY 13244-5300
MSS 9210844 A000; 09/01/1992; $94,999; 36 mo.

Modeling Deformation Induced Texture in Titanium Using Analytic Solutions for Single Crystal Response
Dawson, Paul; Jenkins, James; Cornell University - Endowed, Ithaca, NY 14853
MSS 9114861 A001; 09/01/1991; $105,760; 12 mo.

Embrittlement of Nano-Scale Structures: A Multidisciplinary Study of Stress Corrosion Cracking
Devine, Thomas; Gronsky, Ronald; Ferrari, Mauro; University of California-Berkeley, Berkeley, CA 94720
MSS 9215671 A000; 09/01/1992; $360,000; 36 mo.

Undergraduate Materials Education Initiative: Development and Implementation of a New Materials Synthesis and Processing Laboratory
Flemings, Merton; Rubner, Michael; Massachusetts Institute of Technology, Cambridge, MA 02139
DMR 9218128 A000; 10/01/1992; $350,000; 36 mo.
Jointly Funded with METALLURGY and CERAMICS $175,000

Undergraduate Materials Education Initiative: An Innovative Undergraduate Materials Curriculum
Gaskell, David; Peppas, Nikolaos; Caruthers, James; Bowman, Keith; Trumble, Kevin; Purdue University, West Lafayette, IN 47907
DMR 9218126 A000; 10/01/1992; $350,000; 36 mo.
Jointly Funded with SOLID-STATE CHEMISTRY and POLYMERS $175,000

Micromechanical Modelling of Natural Materials
Gibson, Lorna; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9202202 A000; 09/01/1992; $209,765; 36 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $104,882

Modeling and Characterization of Materials for Dynamic Metal Working Processes
Gilat, Amos; Ohio State University Research Foundation, Columbus, OH 43210
MSS 9114258 A001; 08/15/1991; $55,000; 12 mo.

Advanced Manufacturing Concepts for Shaping Superplastic Sheet Materials
Hamilton, C. Howard; Bayoumi, Abdel; Zbib, Hussein; Washington State University, Pullman, WA 99164-3140
DDM 9114852 A000; 08/15/1992; $99,925; 12 mo.
Jointly Funded with SOLID MECHANICS $34,000

Research Initiation Award: Analytical and Experimental Modeling of Acoustic Emission Signals
Jacobs, Laurence; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9111339 A001; 07/15/1991; $7,450; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,862

Investigation of Mixed Fiber/Filament Three-Dimensional Performs for a New Generation of Advanced Composites
Jang, Bor; Baker, R. Terry; Auburn University, Auburn, AL 36849
MSS 8902939 A003; 09/15/1989; $91,588; 12 mo.

Manufacturing and Characterization of Embedded Sensors in Epoxy Laminates
Jardine, A.P.; Donnellan, Thomas; SUNY at Stony Brook, Stony Brook, NY 11794-0001
MSS 9213955 A000; 07/15/1992; $14,400; 8 mo.

Nickel-Based, Complex-Nanophase Materials
Johnson, D. Lynn; Weertman, Julia; Mason, Thomas; Weertman, Johannes; Dravid, Vinayak; Northwestern University, Evanston, IL 60208
DMR 9202574 A000; 09/15/1992; $442,900; 12 mo.
Jointly Funded with CERAMICS $100,000

Investigation of Fundamental Behavior of Single Crystals and Polycrystalline Solids for Application to Metal Forming
Khan, Akhtar; University of Maryland-Baltimore County, Baltimore, MD 21228
MSS 9296057 A000; 01/15/1992; $134,616; 26 mo.

Research Initiation Award: Structural Relaxations in Glass-Forming Oxide Melts
Kieffer, John; University of Illinois at Chicago, Chicago, IL 60680
MSS 9008918 A001; 07/01/1990; $8,001; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $6,001

Micromechanics of Interfacial Failure in Composites
Krajcinovic, Dusan; Majumdar, Arunava; Arizona State University, Tempe, AZ 85287
MSS 9114329 A001; 08/15/1991; $80,000; 12 mo.

Mechanical Behavior of High-Strength Plastics: Experiments and Modeling
Krempl, Erhard; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
MSS 9114411 A000; 12/15/1991; $150,000; 24 mo.

Mixed-Mode Failure Analysis of a Unidirectional Carbon/Epoxy Composite and Ahesively Bonded Composite Systems Using the Modified Losipescu Test Method
Kumosa, Maciej; Oregon Graduate Institute of Science and Technology, Beaverton, OR 970061999
MSS 9102763 A001; 07/01/1991; $60,000; 12 mo.

Presidential Young Investigator Award: Computational Micromechanics of Solids
Lambropoulos, John; University of Rochester, Rochester, NY 14627
MSS 8857096 A005; 08/01/1988; $28,530; 0 mo.
MSS 8857096 A006; 08/01/1988; $62,500; 12 mo.

Integrally Shunted Piezoelectric Reinforcement for Tailored Frequency-Dependent Passive Damping of Composite Materials
Lesieutre, George; Yoshikawa, Shoko; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9119582 A000; 09/15/1992; $25,000; 12 mo.

Fracture Mechanics of Articular Cartilage
Lewis, Jack; Keer, Leon; University of Minnesota-Twin Cities, Minneapolis, MN 55415
BCS 9022052 A001; 09/15/1991; $100,000; 12 mo.
Jointly Funded with RESEARCH TO AID THE DISABLED $100,000

NSF Young Investigator Award
McManus, Hugh; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9257612 A000; 09/01/1992; $25,000; 12 mo.

The Mechanics of Powder Consolidation for Composite Materials
McMeeking, Robert; Evans, Anthony; University of California-Santa Barbara, Santa Barbara, CA 93106
DMR 9114560 A001; 08/01/1991; $157,800; 12 mo.
Jointly Funded with METALLURGY $100,000

Modeling the Initial Stage of Sintering of Powders in the Presence of a Liquid Phase
Mehrabadi, Morteza; Tulane University, New Orleans, LA 70118
MSS 9114538 A001; 09/01/1991; $65,000; 12 mo.

Research Initiation Award: Development of Fatigue-Resistant Low-Activation Materials for Fusion Reactor Applications
Morrison, David; Clarkson University, Potsdam, NY 13676
MSS 9108695 A001; 09/01/1991; $9,500; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $4,750

Reactive Infiltration Synthesis of Aluminide Matrix Composites
Mortensen, Andreas; Dunand, David; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9201843 A000; 09/01/1992; $200,000; 12 mo.
Jointly Funded with METALLURGY $70,000

An Analytical and Experimental Investigation of Piezo-Ceramic Monolithic and Array Geometries in Micro-actuation
Naganathan, Ganapathy; University of Toledo, Toledo, OH 43606
MSS 9215656 A000; 08/15/1992; $140,000; 24 mo.

Fundamental Experiments in Finite Plasticity
Naghdi, Paul; Casey, James; University of California-Berkeley, Berkeley, CA 94720
MSS 9216069 A000; 10/01/1992; $330,000; 36 mo.

Fiber-Reinforced Thermoplastic Polymer Blends: Processing Microstructure-Fracture Resistance Relationships
Nair, Shantikumar; University of Massachusetts-Amherst, Amherst, MA 01003
MSS 9201625 A000; 08/15/1992; $60,008; 12 mo.

A Fundamental Study of Localized Plastic Instabilities
Nemat-Nasser, Siavouche; Meyers, Marc; Vecchio, Kenneth; University of California-San Diego, San Diego, CA 92093
MSS 9021671 A001; 07/01/1991; $193,589; 12 mo.

Research Initiation Award: The Role of the Interface and the Interphase Region on the Toughening of Highly Crosslinked Epoxies
Pearson, Raymond; Lehigh University, Bethlehem, PA 18015
MSS 9211664 A000; 09/01/1992; $100,000; 36 mo.

Processing and Performance of Coated and Clad Materials
Piehler, Henry; Howe, James; Johnson, William; Steif, Paul; Carnegie-Mellon University, Pittsburgh, PA 15213
MSS 8714377 A004; 07/01/1988; $20,217; 0 mo.

Research Areas in Manufacturing Unit Processes
Pollack, Kerstin; National Academy of Sciences, Washington, DC 20418
DDM 9022041 A001; 02/01/1991; $239,171; 12 mo.
Jointly Funded with SPECIAL PROGRAMS and SOLID MECHANICS $169,586

Research Initiation Award: Composite Shielding Mechanisms
Radford, Donald; Colorado State University, Fort Collins, CO 80523
MSS 9210374 A000; 08/15/1992; $90,000; 36 mo.

Presidential Young Investigator Award
Ramulu, Mamidala; University of Washington, Seattle, WA 98195
MSS 8958641 A003; 07/01/1989; $62,500; 12 mo.

Advanced Cement Matrix Materials: Synthesis and Processing of Alkali-Activated Cements
Roy, Della; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9123239 A000; 07/01/1992; $70,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $35,000

The Mechanics of Surface Modification for Rolling Element Performance
Rubin, Carol; Hahn, George; Vanderbilt University, Nashville, TN 37240
MSS 9203252 A000; 07/15/1992; $186,030; 36 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $101,000

Research Initiation Award: Superconducting Oxide/Noble Metal Microlaminates Prepared by the Oxidation of Noble Metal-Bearing Metallic Precursors
Sandhage, Kenneth; Ohio State University Research Foundation, Columbus, OH 43210
MSS 9211281 A000; 09/01/1992; $99,994; 36 mo.

Sixth International Conference on Surface Modifications Technologies
Scott, Alexander; Sudarshan, T.; Minerals Metals and Materials Society, Warrendale, PA 15086
MSS 9211428 A000; 08/15/1992; $3,000; 11 mo.

NSF Young Investigator Award
Shaw, Barbara; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9257915 A000; 09/01/1992; $25,000; 12 mo.

Research Initiation Award: Synthesis and Properties of Electrochemically Processed Nanocrystalline and Fiber-Reinforced Composities
Singh, Raj; University of Cincinnati-Main Campus, Cincinnati, OH 45221
MSS 9108912 A001; 07/15/1991; $9,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,250

REG: Acquisition of Accessories for a High Temperature Mechanical Testing System
Singh, Raj; Jayaraman, Narayanan; Vasudevan, Vijay; University of Cincinnati-Main Campus, Cincinnati, OH 45221
MSS 9212988 A000; 09/01/1992; $96,330; 12 mo.

Engineering Research Equipment: Dynamic Mechanical Spectrometer
Sperling, Leslie; Thomas, David; Pearson, Raymond; Lehigh University, Bethlehem, PA 18015
MSS 9212805 A000; 08/15/1992; $98,270; 12 mo.
Jointly Funded with SOLID MECHANICS $68,703

Mechanics of Diffusive Failure of Fine Metal in Integrated Circuits
Suo, Zhigang; University of California-Santa Barbara, Santa Barbara, CA 93106
MSS 9202165 A000; 08/15/1992; $56,637; 12 mo.

Materials Synthesis and Processing: Modeling and Control of Macro-Phenomena and Micro-Structure in Steel Rolling
Tseng, Ampere; Drexel University, Philadelphia, PA 19104
DDM 9201831 A000; 10/01/1992; $49,354; 12 mo.

An Advanced Composite Postformable Bone Plate
White, Moreno; Sparta Inc., San Diego, CA 92121-1964
III 9160996 A000; 01/01/1992; $49,998; 6 mo.

Fractal Analysis of Branched Structures on Fractured Surfaces of Crosslinked Polymers and Model Systems
Wunder, Stephanie; Temple University, Philadelphia, PA 19122
MSS 9210713 A000; 08/01/1992; $60,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $18,000

Presidential Faculty Fellow
Zumbrunnen, David; Clemson University, Clemson, SC 29634
MSS 9253640 A000; 09/01/1992; $100,000; 12 mo.

Study on Materials for the 21st Century
Zwilsky, Klaus; National Academy of Sciences, Washington, DC 20418
DDM 9017571 A001; 03/01/1991; $29,903; 11 mo.
Jointly Funded with SPECIAL PROGRAMS $29,903

Solid Mechanics

Material Characterization of Shape-Memory Alloys
Abeyaratne, Rohan; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9121257 A001; 08/15/1991; $45,002; 12 mo.

Theoretical and Experimental Investigation of Thermodynamics Structure, Vibrational and Interfacial Properties of Amorphous Metals
Adams, James; Kieffer, John; Averback, Robert; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9101897 A001; 09/15/1991; $57,574; 0 mo.
MSS 9101897 A002; 09/15/1991; $4,000; 0 mo.
MSS 9101897 A003; 09/15/1991; $91,479; 12 mo.

Research Initiation Award: Compressible Squeeze-Film Dampers
Arakere, Nagaraj; Wichita State University, Wichita, KS 67208
MSS 9211505 A000; 09/15/1992; $19,000; 36 mo.

Mechanics of Interfaces/The Mechanics of Adhesion Testing of Flexible Films
Aravas, Nikolaos; University of Pennsylvania, Philadelphia, PA 19104
MSS 8657860 A006; 06/15/1987; $10,000; 0 mo.

Microlayer Polymeric Composites
Baer, Eric; Hiltner, Anne; Case Western Reserve University, Cleveland, OH 44106
DMR 9100300 A001; 06/15/1991; $120,000; 12 mo.

Research Initiation Award: Micromechanics of Damage in Metal Matrix Composites
Bao, Gang; Johns Hopkins University, Baltimore, MD 21218
MSS 9210250 A000; 09/01/1992; $89,982; 36 mo.

Thermoelastic Effects in the Solidification of Castings
Barber, J.; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9200762 A000; 08/15/1992; $57,308; 12 mo.

Adaptive Multi-Domain Spectral Methods Applied to High-Gradient Problems in Solid Mechanics
Bayliss, Alvin; Belytschko, Ted; Northwestern University, Evanston, IL 60208
MSS 9102981 A001; 06/15/1991; $104,884; 12 mo.

Internationl Symposium on Creep and Shrinkage of Concrete
Bazant, Zdenek; Northwestern University, Evanston, IL 60208
MSS 9215299 A000; 09/01/1992; $14,227; 18 mo.
Jointly Funded with STRUCT SYSTS and CONSTRCT PROCES $4,000

Nonlinear Effects in Elastomers and Soft Biological Tissues
Beatty, Millard; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
MSS 9096224 A002; 07/01/1990; $33,074; 12 mo.

REG: Proposal for a Nanoindenter
Bhushan, Bharat; Ohio State University Research Foundation, Columbus, OH 43210
MSS 9212730 A000; 10/01/1992; $80,000; 12 mo.

Presidential Young Investigator Award
Blume, Janet; Brown University, Providence, RI 02912
MSS 8957816 A004; 07/01/1989; $25,000; 12 mo.

Quantification of Biodegradation of Wood at Inaccessible Locations
Bodig, Jozsef; Engineering Data Management Inc., Fort Collins, CO 80525
III 9022391 A000; 09/01/1992; $248,556; 24 mo.

An Investigation of C60/C70 as a Lubricant on Magnetic Thin-Film Disks
Bogy, David; University of California-Berkeley, Berkeley, CA 94720
MSS 9120529 A000; 10/15/1991; $22,058; 6 mo.

Research Initiation Award: Densification of Ceramic Matrix Composites
Bordia, Rajendra; University of Washington, Seattle, WA 98195
MSS 9209775 A000; 08/15/1992; $100,000; 36 mo.

Research Initiation Award: Analysis of Failure Mechanisms in Thin Coatings
Bower, Allan; Brown University, Providence, RI 02912
MSS 9210316 A000; 09/01/1992; $90,000; 36 mo.

Mechanics of Glassy Polymers During Solid-Phase Deformation Processing
Boyce, Mary; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9215805 A000; 09/01/1992; $180,001; 36 mo.

Kinking of Fiber Composites
Budiansky, Bernard; Harvard University, Cambridge, MA 02138
MSS 9216135 A000; 09/01/1992; $180,000; 36 mo.

Presidential Young Investigator Award
Chang, Fu-Kuo; Stanford University, Stanford, CA 94305
MSS 8857022 A004; 08/01/1988; $25,000; 12 mo.

Analytical and Experimental Investigations of Elastic-Plastic Fracture in Solids
Chao, Yuh; Sutton, Michael; University of South Carolina at Columbia, Columbia, SC 29208
MSS 9003973 A003; 07/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $8,750
MSS 9003973 A004; 07/15/1990; $62,913; 12 mo.

Synthesis and Tribological Characterization of Novel Superhard Coatings of Corbin Nitride
Chung, Yip-Wah; Wong, Ming-Show; Sproul, William; Northwestern University, Evanston, IL 60208
MSS 9203239 A000; 05/01/1992; $209,057; 36 mo.

Micro-Mechanics of Failure-Resistant Materials
Clifton, Rodney; Brown University, Providence, RI 02912
DMR 9002994 A002; 07/01/1990; $821,600; 12 mo.
Jointly Funded with MATERIALS RESEARCH GRPS PROGRM $235,000

Research Initiation Award: An Analytical Model for the Mechanical Response of a Ligament
Conway, Ted; University of Akron, Akron, OH 44325
MSS 9209974 A000; 09/01/1992; $93,154; 36 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $46,577

Mechanism of Wear of Semiconductors and Ceramics
Danyluk, Steven; Lawn, Brian; University of Illinois at Chicago, Chicago, IL 60680
MSS 8714491 A006; 01/01/1988; $5,000; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000

Detection of Incipient Surface Charge Due to Tribological Contact
Danyluk, Steven; University of Illinois at Chicago, Chicago, IL 60680
MSS 9213525 A000; 07/15/1992; $29,484; 12 mo.

Constitutive Modelling of Mechanical Response of Materials in Semiconductor Devices with Emphasis on Interface Behavior
Desai, Chandrakant; Kundu, Tribikram; Prince, John; University of Arizona, Tucson, AZ 85721
DDM 9102177 A001; 08/15/1991; $92,753; 12 mo.

Some Fundamental Problems in Nonlinear Fracture Mechanics
Drugan, Walter; University of Wisconsin-Madison, Madison, WI 53706
MSS 9215688 A000; 09/01/1992; $180,000; 36 mo.

Travel Grants: U.S. National Committee for Theoretical and Applied Mechanics: Haifa, Israel, August 22-28, 1992
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
CTS 9206382 A000; 03/01/1992; $20,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC and MATERIALS PROCESSING and MANUFCT $6,666

REG: Ball-Plane (Modified Bowden Leben) Friction and Wear Tester
Engel, Peter; Prakash, Veeramani; SUNY at Binghamton, Binghamton, NY 13901
MSS 9212970 A000; 08/01/1992; $30,300; 12 mo.

Presidential Faculty Fellow
Everbach, Erich; Swarthmore College, Swarthmore, PA 19081
MSS 9253777 A000; 09/01/1992; $100,000; 12 mo.

Presidential Young Investigator Award
Farris, Thomas; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9057082 A002; 09/01/1990; $62,500; 12 mo.

An Interface-Engineered Si3N4 for Optimum Wear Resistance
Fine, Morris; Hsu, S.M.; Vaynman, Semyon; Northwestern University, Evanston, IL 60208
MSS 9223584 A000; 10/15/1992; $25,360; 12 mo.

An Assessment of U.S.-German Exchange Programs in Mechanical Engineering Workshop: March 1992, in New Orleans, Louisiana
Fletcher, Leroy; Texas A&M University Research Foundation, College Station, TX 77843
CTS 9211694 A000; 03/15/1992; $44,687; 12 mo.
Jointly Funded with SPECIAL PROGRAMS and FLUID DYNAMICS AND HYDRAULICS $20,187

The Development of Continuum Mechanics and Material Behavior
Fosdick, Roger; University of Minnesota Institute of Technology, Minneapolis, MN 55455
MSS 9024637 A001; 07/01/1991; $45,000; 12 mo.
Jointly Funded with APPLIED MATHEMATICS $15,000

Presidential Young Investigator Award
Frantziskonis, George; University of Arizona, Tucson, AZ 85721
MSS 9157237 A001; 07/15/1991; $62,500; 12 mo.

A New Approach to Ceramic Lubrication: Tribopolymerization
Furey, Michael; Kajdas, C.; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9121910 A000; 06/15/1992; $76,947; 12 mo.

International Symposium on Boundary Element Methods; Boulder
Geers, Thomas; University of Colorado at Boulder, Boulder, CO 80309
MSS 9221080 A000; 08/01/1992; $5,000; 6 mo.
Jointly Funded with COMPUTATIONAL ENGINEERING $2,500

Neural Networks in Material Modeling and Computational Mechanics
Ghaboussi, Jamshid; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9214910 A000; 09/15/1992; $141,069; 36 mo.

Buckminsterfullerene-Ion-Assisted Deposition of Thin Films
Gibson, Ursula; Dartmouth College, Hanover, NH 03755
MSS 9200606 A000; 03/15/1992; $35,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $17,500

Polymeric, Ultra-Thin Films as Bonded Lubricants, Coatings, and Membranes
Grainger, David; Oregon Graduate Institute of Science and Technology, Beaverton, OR 970061999
MSS 9212496 A000; 09/01/1992; $54,617; 36 mo.
Jointly Funded with SPECIAL PROGRAMS $54,000

An Engineering Facility Internship with the Alcoa Technical Center
Grandt, Alten; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9213769 A000; 09/15/1992; $19,360; 6 mo.

Molecular Tribology of Lubricants and Additives
Granick, Steve; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9202143 A000; 02/15/1992; $255,000; 36 mo.
MSS 9202143 A001; 02/15/1992; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

REG: Adhesion Tester
Gulino, Daniel; Ohio University, Athens, OH 45701
MSS 9212341 A000; 07/01/1992; $10,000; 6 mo.

Advanced Manufacturing Concepts for Shaping Superplastic Sheet Materials
Hamilton, C. Howard; Bayoumi, Abdel; Zbib, Hussein; Washington State University, Pullman, WA 991643140
DDM 9114852 A000; 08/15/1992; $99,925; 12 mo.
Jointly Funded with MATERIALS ENGINEERING $34,000

Research Initiation Award: Contact Mechanics for Ceramic Materials
Hanson, Mark; Kentucky Research Foundation, Lexington, KY 40506
MSS 9210531 A000; 08/15/1992; $89,958; 36 mo.

Research Initiation Award: Studies of the Constitutive Behavior of Amorphous Thermoplastics
Harren, Stephen; University of Illinois at Chicago, Chicago, IL 60680
MSS 9210381 A000; 08/15/1992; $89,964; 36 mo.

Scattering from Partially Closed Cracks and Other Imperfect Interfaces
Harris, John; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9114547 A001; 09/01/1991; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Research Initiation Award: Resonating Anisotropic Solids: Novel Elastic Constant Measurements (REU Supplement)
Heyliger, Paul; Colorado State University, Fort Collins, CO 80523
MSS 9010099 A002; 09/01/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $8,750

Presidential Young Investigator Award
Hoger, Anne; University of California-San Diego, San Diego, CA 92093
MSS 9057629 A002; 08/01/1990; $25,000; 12 mo.
MSS 9057629 A003; 08/01/1990; $37,500; 0 mo.

Edge Effects and Interior Solutions for Anisotropic and Composite Materials
Horgan, Cornelius; Simmonds, James; University of Virginia-Main Campus, Charlottesville, VA 22901
MSS 9102155 A001; 06/15/1991; $83,663; 12 mo.

Research Initiation Award: Experimental Investigation of Brittle to Ductile Transition in Cleavage Fracture
Hsia, K.; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9209309 A000; 09/01/1992; $100,000; 36 mo.

Studies in Fracture and Materials Mechanics
Hutchinson, John; Harvard University, Cambridge, MA 02138
MSS 9020141 A001; 07/01/1991; $82,500; 12 mo.

Quantitative Nondestructive Evaluation for Steel Components of Large Structural Systems
Jiles, David; Biner, S. Bulent; Klaiber, F.; Iowa State University, Ames, IA 50011
MSS 9018532 A002; 01/01/1991; $50,000; 12 mo.

Presidential Young Investigator Award
Ju, Jiann-Wen; Princeton University, Princeton, NJ 08544
MSS 9157238 A001; 09/01/1991; $62,500; 12 mo.

Coupled Experimental and Analytical Investigations of Creep Crack Growth in Metallic Materials
Kang, Bruce; West Virginia University Research Corporation, Morgantown, WV 26506
MSS 9215787 A000; 09/15/1992; $103,481; 36 mo.

Supplemental Contribution of 1992 Gordon Research Conference on Tribology: June 15-19, 1992, in Plymouth, New Hampshire
Kennedy, Francis; Gordon Research Conferences, Kingston, RI 02881
MSS 9212622 A000; 05/01/1992; $5,000; 6 mo.

Workshops on Evaluation of Constitutive Models for Finite Plastic Deformation in Solids
Khan, Akhtar; University of Maryland-Baltimore County, Baltimore, MD 21228
MSS 9296045 A000; 01/15/1992; $96,830; 20 mo.

A Microstructual Design Study of Ceramic Composites Using Computational and Experimental Methods
Kikuchi, Noboru; Holmes, John; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9021683 A001; 06/15/1991; $101,105; 12 mo.

REG: Computing Equipment for Constitutive- and Failure-Mode Modelling of Advanced Materials
Knauss, Wolfgang; Rosakis, Ares; Ravichandran, Guruswaminaidu; California Institute of Technology, Pasadena, CA 91125
MSS 9212111 A000; 09/01/1992; $50,000; 12 mo.

Presidential Young Investigator Award
Komvopoulos, Kyriakos; University of California-Berkeley, Berkeley, CA 94720
MSS 8996309 A004; 08/25/1989; $37,500; 0 mo.
MSS 8996309 A005; 08/25/1989; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,500
MSS 8996309 A006; 08/25/1989; $62,500; 12 mo.

Material Characterization of Shape Memory Alloys
Kyriadides, Stelios; University of Texas at Austin, Austin, TX 78712
MSS 9020335 A001; 08/15/1991; $60,141; 12 mo.

Studies of Fundamental Processes of Friction, Thin-Film Lubrication and Wear
Landman, Uzi; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9201520 A000; 09/01/1992; $20,000; 36 mo.

Research Initiation Award: Coupled Magneto-Thermo-Mechanical Behavior of Superconducting Composites
Lee, Jong; Clarkson University, Potsdam, NY 13676
MSS 9009490 A001; 05/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000

Toughening Mechanisms in Mixed-Mode Interfacial Fracture
Liechti, Kenneth; University of Texas at Austin, Austin, TX 78712
MSS 9201929 A000; 08/01/1992; $59,033; 12 mo.

REG: I/R Microscope
Liechti, Kenneth; University of Texas at Austin, Austin, TX 78712
MSS 9212707 A000; 08/15/1992; $50,000; 12 mo.

U.S. Participation in the Joint Soviet-American Conference on New Materials and Technologies in Tribology
Ling, Frederick; Institute for Productivity Research, New York, NY 10018
MSS 9216311 A000; 07/15/1992; $37,545; 12 mo.

The Pressure Profile in Cone-and-Plate Flows of Liquid-Crystal Polymers
Magda, Jules; University of Utah, Salt Lake City, UT 84112
CTS 9022734 A001; 03/15/1991; $20,000; 0 mo.

Presidential Young Investigator Award: Material Damage Under Cyclic Loading
McDowell, David; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 8552714 A006; 06/01/1986; $37,500; 0 mo.

Crack Growth in Creep Brittle Materials
McDowell, David; Saxena, Ashok; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9202932 A000; 08/01/1992; $60,000; 12 mo.

Control of Erosion in a Turbulent Flow of an Annulus with Inner Rotating Cylinder
Merati, Parviz; Adams, William; Calafell, Dag; Western Michigan University, Kalamazoo, MI 49008
MSS 9114453 A001; 09/01/1991; $38,096; 0 mo.

Presidential Young Investigator Award: Tribological Performance of Materials on Their Microstructure and Mechanical Properties
Meyers, Carolyn; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 8858724 A005; 10/01/1988; $62,500; 12 mo.

Delamination Propagation in Advanced Composites - Modelling and Experiments
Mukherjee, Yu; DeHan Engineering Numerics, Ithaca, NY 14850
III 9160889 A000; 01/01/1992; $50,000; 6 mo.

A Fundamental Study of Localized Plastic Instabilities
Nemat-Nasser, Siavouche; Meyers, Marc; Vecchio, Kenneth; University of California-San Diego, San Diego, CA 92093
MSS 9021671 A001; 07/01/1991; $193,589; 12 mo.
Jointly Funded with MATERIALS ENGINEERING $129,059

Bureau of Engraving and Printing Award: Fundamental Studies of Static and Dynamic Interactions Between Cellulose Surfaces
Neuman, Ronald; Auburn University, Auburn, AL 36849
MSS 9009810 A003; 08/01/1990; $15,000; 0 mo.

Application of In-Situ Laser Spectroscopic Techniques to Fundamental Problems in Tribology
Neuman, Ronald; Shah, P.; Auburn University, Auburn, AL 36849
MSS 9118890 A000; 11/15/1991; $38,969; 6 mo.

Random Fields of Micromechanics: Constitutive Laws and Plastic Flow
Ostoja-Starzewski, Martin; Michigan State University, East Lansing, MI 48824
MSS 9202772 A000; 08/15/1992; $60,443; 12 mo.

NSF Young Investigator Award
Ovaert, Timothy; Pennsylvania State Univ.-Allentown Campus, Fogelsville, PA 18051
MSS 9258106 A000; 08/15/1992; $25,000; 12 mo.

Research Initiation: Three-Dimensional Fracture Analysis of Rubber Composite Structures
Pidaparti, Ramana; Indiana University-Bloomington, Bloomington, IN 47405
MSS 9109683 A001; 08/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000

Research Areas in Manufacturing Unit Processes
Pollack, Kerstin; National Academy of Sciences, Washington, DC 20418
DDM 9022041 A001; 02/01/1991; $239,171; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $169,586

Conference: Organization of the 1992 Surface Roughness and Scattering Topical Meeting: Tucson, Arizona, June 1-3, 1992
Quinn, Jarus; Optical Society of America, Washington, DC 20036
ECS 9216232 A000; 06/15/1992; $4,600; 12 mo.
Jointly Funded with MATERIALS PROCESSING AND MANUFCT and SURFACE ENGINEERING AND TRIBOLOGY $3,000

Statistical Approach to Sliding Wear of Ceramic Reinforced Metal Matrix Composite/Metal Systems
Rack, Henry; Clemson University, Clemson, SC 29634
MSS 9114851 A000; 02/15/1992; $160,030; 36 mo.
MSS 9114851 A001; 02/15/1992; $4,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,000

Unsteady Diffusion Through Isotropic and Anisotropic Non-Linearly Elastics Solids Undergoing Large Deformations
Rajagopal, K.; University of Pittsburgh, Pittsburgh, PA 15260
MSS 8917747 A002; 07/15/1990; $19,470; 0 mo.
Jointly Funded with AIR FORCE - NON-HOMOGENEOUS DEF $19,470

The Rheology of Elastohydrodynamic Lubricants at High Shear Rates and High Pressures
Ramesh, Kaliat; Johns Hopkins University, Baltimore, MD 21218
MSS 9114781 A001; 09/01/1991; $68,150; 12 mo.

Presidential Young Investigator Award
Ramulu, Mamidala; University of Washington, Seattle, WA 98195
MSS 8958641 A003; 07/01/1989; $62,500; 12 mo.
Jointly Funded with MATERIALS ENGINEERING $31,250

Presidential Young Investigator Award
Ravichandran, Guruswaminaidu; California Institute of Technology, Pasadena, CA 91125
MSS 9157846 A001; 08/15/1991; $62,500; 12 mo.

Conference Support for BEM 15; to be held August 10-12, 1993 in Worcester, MA
Rencis, Joseph; Worcester Polytechnic Institute, Worcester, MA 01609
MSS 9217621 A000; 01/01/1993; $10,000; 12 mo.

The Mechanics of Surface Modification for Rolling Element Performance
Rubin, Carol; Hahn, George; Vanderbilt University, Nashville, TN 37240
MSS 9203252 A000; 07/15/1992; $186,030; 36 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and MATERIALS ENGINEERING $101,000

Experimental and Analytical Investigation of Tribo-Contacts In Situ
Sadeghi, Farshid; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9123274 A000; 04/01/1992; $194,882; 36 mo.

Presidential Young Investigator Award
Saigal, Sunil; Carnegie-Mellon University, Pittsburgh, PA 15213
MSS 9057055 A003; 09/01/1990; $37,500; 0 mo.
MSS 9057055 A004; 09/01/1990; $4,000; 0 mo.

Analysis of the Lubricating Film in Lip Seals and the Effects of Lip Surface Microgeometry
Salant, Richard; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9114031 A000; 12/15/1991; $149,380; 24 mo.

Advanced Polymeric Materials: Process Induced Internal Stresses in Laminated Polymer Composites
Seferis, James; University of Washington, Seattle, WA 98195
DDM 9101648 A001; 08/15/1991; $52,000; 12 mo.

A Study of Biaxial Strains at Notch Roots at High Temperature
Sharpe, William; Johns Hopkins University, Baltimore, MD 21218
MSS 9016817 A001; 04/01/1991; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000
MSS 9016817 A002; 04/01/1991; $74,762; 12 mo.

Presidential Young Investigator Award
Shawki, Tarek; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 8957180 A003; 07/01/1989; $56,874; 12 mo.

NSF Young Investigator Award
Shield, Thomas; University of Minnesota-Twin Cities, Minneapolis, MN 55415
MSS 9257945 A000; 09/01/1992; $25,000; 12 mo.

Dynamic Characterization of Advanced Polymers Using Fiber Optics
Shukla, Arun; Letcher, Stephen; University of Rhode Island, Kingston, RI 02881
MSS 9101514 A001; 07/01/1991; $71,365; 12 mo.

Research Initiation Award: The Effect of Interface Diffusion and Slip on the Creep Resistance of Fiber and Particulate Composite Materials
Sofronis, Petros; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9210686 A000; 09/01/1992; $90,400; 36 mo.

Field-Defect Interactions and Electromechanical Behavior in Piezoelectric Multilayer Structures
Sosa, Horacio; Drexel University, Philadelphia, PA 19104
MSS 9215296 A000; 09/15/1992; $179,984; 36 mo.

Engineering Research Equipment: Dynamic Mechanical Spectrometer
Sperling, Leslie; Thomas, David; Pearson, Raymond; Lehigh University, Bethlehem, PA 18015
MSS 9212805 A000; 08/15/1992; $98,270; 12 mo.

Research Initiation Award: The Role of Lubricant Viscosity in the Frictional Behavior of the Magnetic Slider/Disk
Streator, Jeffrey; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9110469 A001; 07/15/1991; $4,606; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $4,606

NSF Young Investigator Award
Streator, Jeffrey; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9258014 A000; 08/01/1992; $25,000; 12 mo.

Adaptive h-p Finite Element Methods for the Analysis of Strain Localization and Failure in Viscoplastic Continua
Strouboulis, Theofanis; Texas A&M University Engineering Experiment Station, College Station, TX 77843-3577
MSS 9025110 A001; 04/15/1991; $58,345; 12 mo.

Presidential Young Investigator Award
Subramaniam, Vish; Ohio State University Research Foundation, Columbus, OH 43210
MSS 9157303 A001; 07/15/1991; $86,000; 12 mo.

Ultra-Low-Friction Materials
Suh, Nam; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9208219 A000; 08/01/1992; $35,000; 6 mo.

NSF Young Investigator Award
Suo, Zhigang; University of California-Santa Barbara, Santa Barbara, CA 93106
MSS 9258115 A000; 08/15/1992; $25,000; 12 mo.

Request for Purchase of Modernized Testing Center
Sutton, Michael; Chao, Yuh; Lyons, Jed; University of South Carolina at Columbia, Columbia, SC 29208
MSS 9207413 A000; 09/01/1992; $25,000; 12 mo.

Coupled Experimental and Analytical Investigations of Creep Crack Growth in Metallic Materials
Sutton, Michael; Lyons, Jed; University of South Carolina at Columbia, Columbia, SC 29208
MSS 9215606 A000; 09/01/1992; $170,811; 36 mo.

The Thermal Wave and Shock Characteristics in Local Heating of Dynamic Crack Propagation
Tzou, Robert; University of New Mexico, Albuquerque, NM 87131
MSS 9200993 A000; 08/15/1992; $59,367; 12 mo.

Three-Dimensional Ultrasonic Tomographic Microscopy
Wade, Glen; Lee, Hua; University of California-Santa Barbara, Santa Barbara, CA 93106
MSS 9020556 A001; 06/15/1991; $97,071; 12 mo.

Diffuse Fields in Structural Acoustics and Ultrasonics
Weaver, Richard; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9114360 A000; 04/15/1992; $71,376; 12 mo.

Automated Geometric Reasoning of Metal Forming Processes
Weber, G. Gustavo; Carnegie-Mellon University, Pittsburgh, PA 15213
DDM 9115467 A001; 09/01/1991; $60,006; 12 mo.

Research Initiation Award: Ultrasonic Cure Monitor for Polymer-Matrix Composite Materials
White, Scott; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9209973 A000; 08/15/1992; $100,000; 36 mo.

Effects of Rapid, High-Dose, Elevated Temperature in Ion Implantation on the Tribology and Microstructure of Ferrous Materials
Williamson, Don; Wilbur, Paul; Colorado School of Mines, Golden, CO 80401
MSS 9116935 A001; 07/01/1991; $4,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $2,000

International Union of Theoretical and Applied Mechanics (IUTAM) Symposium Support
Wu, Yih-Tsueu; Southwest Research Institute, San Antonio, TX 78201
MSS 9215535 A000; 07/01/1992; $10,000; 18 mo.
Jointly Funded with STRUCT SYSTS and CONSTRCT PROCES $3,500

Limited-Scan Backscatter Technique for Detection of Hidden Corrosion
Yacout, Abdelfatah; Quantum Research Services Inc., Durham, NC 27713-4411
III 9161324 A000; 01/01/1992; $50,000; 6 mo.

Structures, Geomechanics, and Building Systems Program

Geomechanical, Geotechnical, and Geo-Environmental Systems

Cone Penetration Testing in Cemented Sands
Acar, Yalcin; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
MSS 9020368 A003; 03/01/1991; $68,840; 12 mo.
MSS 9020368 A002; 03/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000

Finite Deformation Hygrothermomechanical Response Evaluation of Geologic Media
Advani, Sunder; Lehigh University, Bethlehem, PA 18015
MSS 9296064 A000; 01/01/1992; $37,500; 8 mo.

Experimental Investigation on Vibration Screening Effectiveness of In-Filled Trench Barriers
Ahmad, Shahid; SUNY at Buffalo, Buffalo, NY 14260
MSS 9114114 A000; 01/01/1992; $75,000; 18 mo.

Experimental and Theoretical Studies of the Micromechanics of Clays
Anandarajah, Annalingam; Johns Hopkins University, Baltimore, MD 21218
MSS 9019553 A001; 07/01/1991; $37,739; 12 mo.

Object-Oriented Framework for Geotechnical Engineering
Banerjee, Sunirmal; Miller, Gregory; University of Washington, Seattle, WA 98195
MSS 9112243 A000; 01/01/1992; $25,452; 12 mo.

Workshop on the Selection and Management of U.S. Geotechnical Experimentation Sites
Benoit, Jean; De Alba, Pedro; University of New Hampshire-Durham, Durham, NH 03824
MSS 9121387 A000; 10/15/1991; $34,478; 12 mo.
Jointly Funded with SPECIAL STUDIES AND ANALYSES and SITING AND GEOTECHNICAL SYSTEMS $12,500

Selection and Management of U.S. Geotechnical Experimentation Sites
Benoit, Jean; De Alba, Pedro; University of New Hampshire-Durham, Durham, NH 03824
MSS 9215445 A000; 09/01/1992; $300,000; 12 mo.
Jointly Funded with TRANSPORTATION-FHWA CAN DISSEM and TRANSPORTATION-WORKSHOP TO SEL $42,500

Presidential Young Investigator Award
Benson, Craig; University of Wisconsin-Madison, Madison, WI 53706
MSS 9157116 A001; 07/01/1991; $37,500; 0 mo.
MSS 9157116 A002; 07/01/1991; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000

Presidential Young Investigator Award
Benson, Craig; University of Wisconsin-Madison, Madison, WI 53706
MSS 9157116 A003; 07/01/1991; $62,500; 12 mo.

Contamination of Groundwater by Grout Leachate
Borden, Roy; Barlaz, Morton; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
MSS 9202821 A000; 05/15/1992; $66,220; 12 mo.

A Study of Creep Instability in Granular Materials as a Localization Problem
Borja, Ronaldo; Stanford University, Stanford, CA 94305
MSS 9022448 A001; 07/15/1991; $50,723; 12 mo.

Structure of the Hagia Sophia from the Age of Justinian to the Present
Cakmak, Ahmet; Mark, Robert; Princeton University, Princeton, NJ 08544
MSS 9001601 A004; 06/01/1990; $2,000; 0 mo.

Support for Workshop on Geographic Information Systems and Their Application in Geotechnical Earthquake Engineering
Chameau, Jean-Lou; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
BCS 9213395 A000; 06/01/1992; $29,097; 12 mo.

A Statistical Micromechanics Approach for Constitutive Modelling of Granular Soil
Chang, Ching; University of Massachusetts-Amherst, Amherst, MA 01003
MSS 9115634 A001; 09/01/1991; $67,616; 12 mo.

Flexural Cracking in Landfill Caps
Cheng, S. Jonathan; Larralde-Muro, Jesus; Martin, Joseph; Drexel University, Philadelphia, PA 19104
MSS 9115197 A001; 10/01/1991; $9,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $9,000
MSS 9115197 A002; 10/01/1991; $40,979; 12 mo.

In-Situ Thermal Stabilization of Soils Using Plasma Arc Technology
Circeo, Jr., Louis; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9113134 A000; 01/01/1992; $29,874; 9 mo.

Special Workshop Entitled: The Establishment of an Institute for Emerging Constructed Systems
Connor, Jerome; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9208710 A000; 02/15/1992; $21,000; 6 mo.
Jointly Funded with LARGE STRUCTURAL AND BLDG SYSTMS $14,000

A Study of the Coupled Hydraulic-Mechanical Behavior of Jointed Rock Masses
Cording, Edward; Gabriel, Fernandez; Ghaboussi, Jamshid; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9215622 A000; 09/01/1992; $45,363; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $45,363

Development of a Test for Determining the Leachate Dispersion Rate in Soil Using Fiber Optics
Cosentino, Paul; Grossman, Barry; Shieh, Chih-Shin; Florida Institute of Technology, Melbourne, FL 32901
MSS 9200968 A000; 01/01/1992; $19,991; 12 mo.

Self-Excited Vibrations of Drillstrings
Dareing, Don; Tlusty, Jiri; University of Florida, Gainesville, FL 32611
MSS 9118421 A000; 06/01/1992; $0; 3 mo.

The Mechanics and Physics of Fracture in Ice
Dempsey, John; Clarkson University, Potsdam, NY 13676
MSS 9007929 A002; 08/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000

Managing the Potential Contamination of Ground Water From Pesticides
Dendrou, Stergios; ZEI Engineering Inc., Falls Church, VA 22041
MSS 9220305 A000; 10/01/1992; $25,000; 6 mo.

Testing and Modelling of Saturated Interfaces Under Cyclic Loading
Desai, Chandrakant; Armaleh, Sonia; University of Arizona, Tucson, AZ 85721
MSS 9115316 A000; 07/15/1992; $64,429; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $32,214

Numerical and Experimental Study of Stress-Strain Behavior of Granular Soils Using Random Arrays of Elastic Ellipsoids
Dobry, Ricardo; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
MSS 9106189 A001; 07/15/1991; $25,541; 12 mo.

Structures, Geomechanics, and Building Systems for the 21st Century
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
MSS 9116411 A000; 12/15/1991; $120,000; 12 mo.
Jointly Funded with STRUCT SYSTS AND CONSTRCT PROCES $80,000

Workshop on Reliability Methods for Risk Mitigation in Geotechnical Engineering
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
MSS 9203139 A000; 04/15/1992; $10,000; 9 mo.
Jointly Funded with NAT and MAN-MADE HAZARD MITIGATI $3,000

Travel Grants: U.S. National Committee for Theoretical and Applied Mechanics, to be held in Haifa, Israel, August 22-28, 1992
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
CTS 9206382 A000; 03/01/1992; $20,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC and MATERIALS PROCESSING AND MANUFCT $6,666

Observational Procedure for Construction on Soft Ground
Edil, Tuncer; University of Wisconsin-Madison, Madison, WI 53706
MSS 9115315 A000; 11/01/1991; $70,500; 12 mo.
MSS 9115315 A001; 11/01/1991; $7,580; 0 mo.
Jointly Funded with SPECIAL PROGRAMS $5,000

Organizational and Operating Cost for USUCGER
Edil, Tuncer; University of Wisconsin-Madison, Madison, WI 53706
MSS 9122195 A000; 01/15/1992; $15,000; 12 mo.
Jointly Funded with SPECIAL STUDIES AND ANALYSES and SITING AND GEOTECHNICAL SYSTEMS $2,500

Presidential Young Investigator Award
Elgamal, Ahmed; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
MSS 9057388 A002; 08/01/1990; $62,500; 12 mo.

Research Initiation Award: Neural Network Analysis of Granular Fabric
Ellis, Glenn; Clarkson University, Potsdam, NY 13676
MSS 9110287 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000

SGER: Innovations in Soil Decontamination by Thermal-Electric-Magnetic Process
Fang, Hsai-Yang; Lehigh University, Bethlehem, PA 18015
MSS 9200105 A000; 07/15/1992; $16,002; 12 mo.

Soil Properties Measurements Using Oscillating, Electro-Kinetic Counter Pressures
Feldkamp, Joseph; Finno, Richard; Northwestern University, Evanston, IL 60208
MSS 9023540 A001; 07/01/1991; $65,000; 12 mo.

Sampling of Ionic Contaminants in Soils Through an Electrolytic Injection Technique
Feldkamp, Joseph; Lewis, Barbara-Ann; Northwestern University, Evanston, IL 60208
MSS 9122667 A000; 05/15/1992; $34,958; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $17,479

The Influence of Freezing and Thawing on the Permeability of Compacted Clays
Fleming, Lorraine; Howard University College of Medicine, Washington, DC 20059
MSS 9201547 A000; 08/15/1992; $31,238; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $15,619

Research Initiation Award: Evaluation of Cohesionless Soil Uniformity and Fabric Using Image Analysis (REU Supplement)
Frost, J. David; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9011232 A001; 09/01/1990; $788; 8 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $788

Research Initiation Award: Evaluation of Cohesionless Soil Uniformity and Fabric Using Image Analysis (REU Supplement)
Frost, J. David; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 9296259 A000; 09/01/1992; $25,200; 5 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $8,750

A Fundamental Study of Sampling Disturbance Effects on the Behavior of Soft Cohesive Deposits
Germaine, John; Azzouz, Amr; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9114447 A001; 09/01/1991; $60,000; 12 mo.

REG: Data Acquisition for Mechanical Rock Excavation Research
Gertsch, Leslie; Ozdemir, Levent; Gertsch, Richard; Colorado School of Mines, Golden, CO 80401
MSS 9213050 A000; 09/01/1992; $48,590; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $48,590

Centrifuge and Full Scale Modelling of Geotextile Reinforced Cohesive Soil Structures
Goodings, Deborah; University of Maryland-College Park, College Park, MD 20742
MSS 9203089 A000; 05/01/1992; $51,294; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $25,647

Seismic Cone Tests in a Particulate Assembly
Huang, An-Bin; Lee, Jong; Clarkson University, Potsdam, NY 13676
MSS 9021973 A001; 07/15/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000
MSS 9021973 A002; 07/15/1991; $33,192; 12 mo.

Preserving Historic Buildings of Major Importance
Hynes, Mary; Department of Army Waterways Experiment Station, Vicksburg, MS 39180
MSS 9214843 A000; 04/15/1992; $48,000; 9 mo.
Jointly Funded with STRUCT SYSTS AND CONSTRCT PROCES and HUMAN RESOURCES DEVELOPMENT $14,500

Development of Hybrid Discrete Element/Finite Element Model for Large Deformation Geotechnical Engineering Problems
Ishibashi, Isao; Nguyen, Duc; Old Dominion University Research Foundation, Norfolk, VA 23508-0369
MSS 8920878 A001; 08/15/1990; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $5,000

A New Approach for Determining Design Soil Parameters from In-Situ Tests
Juang, Charng; Holtz, Robert; Clemson University, Clemson, SC 29634
MSS 9020252 A001; 07/01/1991; $12,812; 12 mo.

Developing a Landfill Siting Approach Using Fuzzy Sets
Juang, Charng; Clemson University, Clemson, SC 29634
MSS 9213690 A000; 07/15/1992; $23,055; 6 mo.

The Next Step in Micromechanical Studies of Rock Deformation and Failure: Experiments and Theory for More Complicated Value Problems that Include Stress Gradient Effects
Kemeny, John; University of Arizona, Tucson, AZ 85721
MSS 9022381 A001; 07/15/1991; $45,000; 12 mo.

Constitutive Modeling of Cemented Soils
Kiousis, Panos; University of Arizona, Tucson, AZ 85721
MSS 9021687 A001; 02/15/1991; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500
MSS 9021687 A002; 02/15/1991; $45,491; 12 mo.

Presidential Young Investigator Award: Studies in Geomechanics
Kramer, Steven; University of Washington, Seattle, WA 98195
MSS 8858001 A004; 07/15/1988; $62,500; 12 mo.

Research Initiation Award: Geomechanical Investigation of Time Dependence of In-Situ Stresses in Soils
Kumbhojkar, Arvind; University of Miami, Coral Gables, FL 33124
MSS 9009156 A002; 08/15/1990; $8,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $8,000

Kinematic Hardening Model for Sand and Clay
Lade, Poul; University of California-Los Angeles, Los Angeles, CA 90024
MSS 9119272 A000; 07/01/1992; $59,229; 12 mo.

Research Initiation Award: One-Dimensional and Multi-Dimensional Stress-State Analyses of Wetting-Induced Collapse in Unsaturated Soils
Lawton, Evert; University of Utah, Salt Lake City, UT 84112
MSS 9196241 A001; 08/15/1991; $10,000; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $8,750

In-Situ Measurement of Dissolved Metals in Ground Water Using Microfabricated Electrochemical Sensors
Maciel, Paul; In-Situ Sensors, Lexington, MA 02173
III 9160693 A000; 01/01/1992; $50,000; 6 mo.

Development and Performance of a Nationwide Civil Engineering Research and Development Survey
Magnell, Carl; Bernstein, Harvey; Civil Engineering Research Foundation, Washington, DC 20005
MSS 9211779 A000; 04/15/1992; $62,824; 10 mo.
Jointly Funded with LARGE STRUCTURAL AND BLDG SYSTMS $37,216

Profiling Stress History of Clays Using Dual Piezocones
Mayne, Paul; Georgia Tech Research Corporation - GA Tech Research Institute, Atlanta, GA 30332
MSS 9108234 A001; 07/15/1991; $62,998; 12 mo.

Pile-Friction Freeze Effects - A Lab Prediction Study and Field Demo
McVay, Michael; Schmertmann, John; University of Florida, Gainesville, FL 32611
MSS 9205247 A000; 10/15/1992; $100,000; 12 mo.
Jointly Funded with TRANSPORTATION $100,000

Modelling Porous and Deformable Media with Several Scales of Heterogeneity
Mei, Chiang; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9019976 A001; 08/01/1991; $80,000; 12 mo.

Multi-Dimensional Signal-Processing for Enhanced Electromagnetic Geotomography
Middleton, Nigel; Stolarczyk, Larry; Colorado School of Mines, Golden, CO 80401
MSS 9200892 A000; 07/01/1992; $31,478; 12 mo.

Kinematic Wave Formulation for Flow Through Macroporous Soil
Miller, Carol; Wayne State University, Detroit, MI 48202
MSS 9123563 A000; 06/01/1992; $41,121; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $20,560

Structural and Geomechanics Systems Grantees Conference
Munoz, Rafael; Rodriguez-Agrait, Leandro; Suarez, Luis; Macari, Emir; University of Puerto Rico-Mayaguez, Mayaguez, PR 00709
MSS 9121402 A000; 11/15/1991; $54,832; 12 mo.
Jointly Funded with STRUCT SYSTS AND CONSTRCT PROCES $27,415

Liquefaction and Residual Strength of Loose Sands from Drained, Tri-Axial Tests
Norris, Gary; University of Nevada-Reno, Reno, NV 89557
MSS 9203746 A000; 07/01/1992; $17,584; 12 mo.

Modelling of Penetration Resistance and Static Capacity of Piles Driven by Vibration (REU Supplement)
O'Neill, Michael; Vipulanandan, Cumaraswamy; University of Houston, Houston, TX 77204
MSS 8920412 A002; 08/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000

Dynamic Response of Rock Bolts to Blast Loads
Otuonye, Francis; Michigan Technological University, Houghton, MI 49931
MSS 9101043 A001; 07/15/1991; $25,870; 12 mo.

Friction of Granular Soil Along an Interface
Paikowsky, Samuel; University of Massachusetts-Lowell Research Foundation, Lowell, MA 01854
MSS 9020526 A001; 07/01/1991; $9,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $7,125
MSS 9020526 A002; 07/01/1991; $45,208; 12 mo.

Electrokinetically Enhanced Contaminant Transport Mechanism
Pamukcu, Sibel; Lehigh University, Bethlehem, PA 18015
MSS 9216291 A000; 09/15/1992; $55,000; 12 mo.

Mass Transport of Hazardous Wastes Through Geosyn Materials
Park, J.K.; University of Wisconsin-Madison, Madison, WI 53706
MSS 9122501 A000; 07/15/1992; $60,170; 12 mo.

Strategic Manufacturing Initiative: Manufacturing Underground Space
Peterson, Carl; Nelson, Priscilla; Massachusetts Institute of Technology, Cambridge, MA 02139
DDM 8914219 A002; 08/01/1990; $272,318; 12 mo.

Presidential Young Investigator Award
Rohde, John; University of Nebraska at Lincoln, Lincoln, NE 68588-0430
MSS 9217857 A000; 08/15/1992; $25,000; 12 mo.

Researach Initiation Award: Elm Waves in Environmental Geotechnology: Fundamental Study and Applications
Santamarina, J. Carlos; University of Waterloo, Waterloo, CA 00000
MSS 9296133 A000; 06/07/1992; $4,800; 7 mo.

Methodology to Apply Unrestricted Consolidation Theory to Practice
Schiffman, Robert; University of Colorado at Boulder, Boulder, CO 80309
MSS 9212634 A000; 08/01/1992; $35,000; 12 mo.
Jointly Funded with TRANSPORTATION (FHA) $17,500

An Evaluation of the Leachability of Heavy Metals from Fly Ash Liner Materials
Shackelford, Charles; Colorado State University, Fort Collins, CO 80523
MSS 8908201 A002; 09/01/1989; $10,000; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $8,750

A Comparison of Steady-State and Transient Methods for Measuring Effective Diffusion Coefficients for Waste Containment
Shackelford, Charles; Colorado State University, Fort Collins, CO 80523
MSS 9122561 A000; 10/01/1992; $36,460; 12 mo.

Equipment for Dynamic Experiments
Stanton, John; Holtz, Robert; Reed, Dorothy; Haraldsdottir, Aslaug; Roeder, Charles; University of Washington, Seattle, WA 98195
BCS 9109346 A000; 11/01/1991; $85,000; 16 mo.
Jointly Funded with SITING AND GEOTECHNICAL SYSTEMS and STRUCTURAL SYSTEMS $40,000

Numerical and Experimental Study of Stress-Strain Behavior of Granular Soils Using Random Arrays of Elastic Ellipsoids
Tat-Ng, Tang; University of New Mexico, Albuquerque, NM 87131
MSS 9105988 A001; 07/15/1991; $34,484; 12 mo.

Presidential Young Investigator Award
Taylor, Teresa; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9157218 A001; 10/01/1991; $25,000; 12 mo.

Analytical Study and Experimental Verification of a Coupled Theory of Mixtures and Micropolar Continua for Geomechanical Application
Voyiadjis, George; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
MSS 9018249 A002; 02/01/1991; $76,306; 12 mo.
MSS 9018249 A003; 02/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000

Comprehensive Investigations of Piezocone Penetration Tests in a Clay Calibration Chamber and Comparison with Field Test Data
Voyiadjis, George; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
MSS 9213807 A000; 09/01/1992; $35,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $3,637

Fundamental Aspects of the Behavior of Saturated Soils Under Undrained Cyclic Loads
Vucetic, Mladen; University of California-Los Angeles, Los Angeles, CA 90024
MSS 8922170 A001; 08/15/1990; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Intelligent Material Handling Systems: Autonomous Retrieval of Buried Objects
Whittaker, William; Motazed, Behnam; Stentz, Anthony; Carnegie-Mellon University, Pittsburgh, PA 15213
MSS 9114674 A000; 12/01/1991; $150,000; 12 mo.
Jointly Funded with STRUCT SYSTS AND CONSTRCT PROCES and LARGE STRUCTURAL AND BLDG SYSTMS $75,000

Fundamental Study of Load Transfer Between Soil and Geosynthetic Reinforcement
Whittle, Andrew; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9123312 A000; 05/15/1992; $59,480; 12 mo.

Research Participation in 7th International Conference on Expansive Soils
Wray, Warren; Texas Tech University, Lubbock, TX 79409
BCS 9209675 A000; 05/01/1992; $17,902; 12 mo.

U.S.-China Workshop on Cooperative Research in Geotechnical Engineering
Wu, Tien; Ohio State University Research Foundation, Columbus, OH 43210
MSS 9215526 A000; 06/15/1992; $51,924; 12 mo.

Field Monitoring of Hubbardson Landfill
Zimmie, Thomas; Rensselaer Polytechnic Institute, Troy, NY 12180-3590
MSS 9204410 A000; 06/15/1992; $10,000; 12 mo.

Flow Channeling in Soft Clays
Znidarcic, Dobroslav; University of Colorado at Boulder, Boulder, CO 80309
MSS 9102223 A001; 07/15/1991; $8,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $7,000

Large Structural and Building Systems

Rationality and Problem Structuring in Design
Akin, Omer; Carnegie-Mellon University, Pittsburgh, PA 15213
MSS 9114459 A000; 01/15/1992; $69,770; 12 mo.

Architecture, Environment, and Energy: Synthesis and Assessment
Allen, Barbara; University of Southwestern Louisiana, Lafayette, LA 70504
MSS 9209971 A000; 08/01/1992; $16,984; 14 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $16,984

U.S.-Italy Masonry Research - Joint with University of Colorado
Atkinson, Richard; Amadei, Bernard; Atkinson-Noland and Associates Inc., Boulder, CO 80302
MSS 9114511 A001; 05/01/1991; $68,090; 12 mo.

A Flexible Flatjack for Quantitative Evaluation of Masonry
Atkinson, Richard; Atkinson-Noland and Associates Inc., Boulder, CO 80302
III 9161482 A000; 01/01/1992; $47,331; 6 mo.

Analysis and Design of FRP Grating/Concrete Composite Structural Slabs
Bank, Lawrence; Catholic University of America, Washington, DC 20064
MSS 9114188 A000; 12/15/1991; $59,620; 12 mo.

Computer-Aided Evaluation of Bridge Safety
Barker, Michael; University of Missouri-Columbia, Columbia, MO 65211
MSS 9114679 A000; 01/15/1992; $50,968; 21 mo.

Fracture of High-Performance Quasibrittle Materials: Effects of Loading Rate and Fatigue
Bazant, Zdenek; Northwestern University, Evanston, IL 60208
MSS 9114476 A000; 04/15/1992; $92,857; 12 mo.

International Workshop on Infrastructure Technology
Beck, James; California Institute of Technology, Pasadena, CA 91125
MSS 9123470 A000; 01/01/1992; $20,000; 12 mo.

Behavior of Traditionally Connected Timber Frames
Bulleit, William; Sanberg, Bogue; Shaler, Stephen; Michigan Technological University, Houghton, MI 49931
MSS 9108064 A000; 01/01/1992; $68,754; 24 mo.

Presidential Young Investigator Award
Chen, Stuart; SUNY at Buffalo, Buffalo, NY 14260
MSS 9058146 A001; 07/15/1990; $52,030; 12 mo.

Special Workshop Entitled: The Establishment of an Institute for Emerging Constructed Systems
Connor, Jerome; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9208710 A000; 02/15/1992; $21,000; 6 mo.
Jointly Funded with GEOMECHAN, GEOTECH, AND GEOENVIRN and STRUCT SYSTS AND CONSTRCT PROCES $14,000

12th International Symposium on the Theory of Traffic Flow and Transportation
Daganzo, Carlos; University of California-Berkeley, Berkeley, CA 94720
MSS 9200745 A000; 05/01/1992; $49,511; 24 mo.

8th U.S.-Japan Workshop on Bridge Engineering: Design Modeling, Experimentation, and Performance
Douglas, Bruce; Maragakis, Emmanuel; University of Nevada-Reno, Reno, NV 89557
MSS 9204036 A000; 01/15/1992; $48,526; 12 mo.

Structures, Geomechanics, and Building Systems for the 21st Century
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
MSS 9116411 A000; 12/15/1991; $120,000; 12 mo.
Jointly Funded with STRUCT SYSTS AND CONSTRCT PROCES and GEOMECHAN, GEOTECH, AND GEOENVIRN $80,000

Ultimate Testing of a Shell Bridge Model
Fanous, Fouad; Klaiber, F.; Iowa State University, Ames, IA 50011
MSS 9106737 A000; 12/15/1991; $68,625; 15 mo.

Progressive Collapse of Cable-Stayed Bridges
Fleming, John; University of Pittsburgh, Pittsburgh, PA 15260
MSS 9105072 A000; 01/01/1992; $53,964; 12 mo.

Coherent Laser-Remote Structural Analysis
Flusberg, Allen; Science Research Laboratory Inc., Somerville, MA 02143
III 9200079 A000; 08/15/1992; $252,796; 24 mo.

Effect of 85 Years of Service on Mechanical Properties of Timber Roof Members
Fridley, Kenneth; Hunt, Michael; Senft, John; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9114615 A000; 12/15/1991; $0; 8 mo.

Effect of 85 Years of Service on Mechanical Properties of Timber Roof Members
Fridley, Kenneth; University of Oklahoma-Norman Campus, Norman, OK 73019
MSS 9296190 A000; 08/01/1992; $50,926; 21 mo.

Research and Innovative Design, Diagnostics, and Maintenance of Constructed Facilities
GangaRao, Hota; West Virginia University Research Corp., Morgantown, WV 26506
MSS 9016459 A001; 08/15/1991; $108,280; 12 mo.

Dynamic Stability of Cable Domes
Gasparini, Dario; Perdikaris, Philip; Case Western Reserve University, Cleveland, OH 44106
MSS 8817461 A002; 11/01/1989; $27,974; 0 mo.

Advanced Seismic Damping Devices for Flexible-Frame Buildings
Gibson, Warren; CSA Engineering Inc., Palo Alto, CA 94303-3843
III 9161018 A000; 01/15/1992; $50,000; 6 mo.

Prestressed Concrete Girders with Openings Under Static, Dynamic, Fatigue, and Ultimate Loadings
Grace, Nabil; Lawrence Technological University, Southfield, MI 48075
MSS 9014808 A001; 08/15/1991; $49,450; 12 mo.

Nondestructive Evaluation by Quantitative Dielectric Imaging
Guo, Wendy; Potomac Research Inc., Potomac, MD 20854
III 9160677 A000; 01/01/1992; $49,991; 6 mo.

Existing RC And RCM Buildings Subject to Wind and Earthquake Loads: Prediction of Structural Response and Retrofit/Repair Performance
Hegemier, Gilbert; Murakami, Hidenori; University of California-San Diego, San Diego, CA 92093
MSS 9024976 A001; 04/01/1991; $265,745; 12 mo.

Investigation of Digital Shearography for Quantitative, Nondestructive Evaluation of Large Structural Systems
Hung, Yau; Hovanesian, Joseph; Oakland University, Rochester, MI 48309-4401
MSS 9100627 A000; 12/01/1991; $58,533; 12 mo.

Presidential Young Investigator Award
Janssen, Donald; University of Washington, Seattle, WA 98195
MSS 8657642 A004; 07/01/1987; $25,000; 12 mo.

NSF Young Investigator Award
Johnson, Peggy; University of Maryland-College Park, College Park, MD 20742
MSS 9258648 A000; 08/15/1992; $25,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $25,000

Conference on Firesafety Design Practices in the 21st Century: Worcester Polytechnic Institute, Worcester, MA
Lucht, David; Worcester Polytechnic Institute, Worcester, MA 01609
MSS 8913129 A001; 03/01/1990; $23,106; 12 mo.

Development and Performance of a Nationwide Civil Engineering Research and Development Survey
Magnell, Carl; Bernstein, Harvey; Civil Engineering Research Foundation, Washington, DC 20005
MSS 9211779 A000; 04/15/1992; $62,824; 10 mo.
Jointly Funded with GEOMECHAN, GEOTECH, AND GEOENVIRN $37,216

Presidential Young Investigator Award
McCord, Mark; Ohio State University, Columbus, OH 43210
MSS 8657342 A005; 07/15/1987; $49,500; 12 mo.

Torsional-Flexural Behavior in Nonlinear Analysis and Design of Steel Structures
McGuire, William; Deierlein, Gregory; Cornell University - Endowed, Ithaca, NY 14853
MSS 9017771 A001; 03/15/1991; $147,002; 12 mo.

Presidential Young Investigator Award
McNeil, Sue; Carnegie-Mellon University, Pittsburgh, PA 15213
MSS 8896250 A005; 06/01/1988; $37,500; 0 mo.

Presidential Young Investigator Award
Monteiro, Paulo Jose; University of California-Berkeley, Berkeley, CA 94720
MSS 8957183 A002; 07/15/1989; $62,500; 12 mo.

Fundamentals of Embedded Optical Fibers in Structural Concrete
Morse, Theodore; Kim, Kyung-Suk; Brown University, Providence, RI 02912
MSS 9017933 A001; 03/15/1991; $150,000; 12 mo.

Structural and Geomechanics Systems Grantees Conference
Munoz, Rafael; Rodriguez-Agrait, Leandro; Suarez, Luis; Macari, Emir; University of Puerto Rico Mayaguez, Mayaguez, PR 00709
MSS 9121402 A000; 11/15/1991; $54,832; 12 mo.
Jointly Funded with GEOMECHAN, GEOTECH, AND GEOENVIRN and STRUCT SYSTS AND CONSTRCT PROCES $27,415

Development of Hybrid (FRP and Steel) Reinforcement
Nanni, Antonio; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9120371 A000; 12/15/1991; $27,433; 12 mo.
MSS 9120371 A001; 12/15/1991; $4,875; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,437

Joint U.S.-Italy-Yugoslavia Research on Evaluation and Retrofit of Masonry-Infilled Reinforced Concrete Frames
Noland, James; Atkinson-Noland and Associates Inc., Boulder, CO 80302
MSS 9011065 A002; 06/01/1990; $48,239; 12 mo.

Advanced Masonry Concepts
Noland, James; Atkinson-Noland and Associates Inc., Boulder, CO 80302
MSS 9200605 A000; 01/01/1992; $50,000; 12 mo.

Condition Evaluation of Concrete Structures Using High-Frequency Ultrasound
Popovics, Sandor; Bilgutay, Nihat; Newhouse, Vernon; Rose, Joseph; Drexel University, Philadelphia, PA 19104
MSS 9114238 A000; 01/01/1992; $89,700; 12 mo.

Experimental and Analytical Investigation of the Durability of Reinforced and Post-Tensioned Concrete in a Simulated Marine Environment
Reddy, D.; Hartt, William; Florida Atlantic University, Boca Raton, FL 33431
MSS 9105194 A000; 12/15/1991; $58,988; 12 mo.

Presidential Young Investigator Award
Rogerson, Peter; SUNY at Buffalo, Buffalo, NY 14260
MSS 8553055 A007; 06/01/1986; $1,750; 0 mo.

Presidential Young Investigator Award
Russell, Jeffrey; University of Wisconsin-Madison, Madison, WI 53706
MSS 9058092 A002; 07/01/1990; $62,500; 12 mo.

NSF Young Investigator Award
Saadatmanesh, Hamid; University of Arizona, Tucson, AZ 85721
MSS 9257344 A000; 09/01/1992; $25,000; 12 mo.
Jointly Funded with SPECIAL PROGRAMS $25,000

Design and Construction of a Portable Instrument to Measure Stresses in Structures
Sciammarella, C.; Illinois Institute of Technology, Chicago, IL 60616
MSS 9020082 A001; 02/01/1991; $79,064; 12 mo.

3rd Bridge Engineering Research in Progress Workshop; Fall 1992; San Diego, California
Seible, Frieder; Priestley, M.J. Nigel; University of California-San Diego, San Diego, CA 92093
MSS 9122854 A000; 01/15/1992; $41,680; 15 mo.

Nonlinear Dynamics in Mechanical Systems
Shaw, Steven; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9296145 A001; 09/16/1991; $67,464; 12 mo.

Joint U.S.-Italy-Yugoslavia Research on Evaluation and Retrofit of Masonry-Infilled Reinforced Concrete Frames
Shing, Pui-Shum; University of Colorado at Boulder, Boulder, CO 80309
MSS 8914008 A001; 06/01/1990; $77,177; 12 mo.

U.S.-Italy Masonry Research - Joint with Atkinson-Noland and Associates
Shing, Pui-Shum; University of Colorado at Boulder, Boulder, CO 80309
MSS 9017149 A001; 06/01/1991; $67,335; 12 mo.

Stochastic Dynamic Traffic Assignment and Real-Time Network Contr o
Stephanedes, Yorgos; Davis, Gary; University of Minnesota-Twin Cities, Minneapolis, MN 55415
MSS 9114676 A000; 01/01/1992; $76,380; 12 mo.

Measuring Potential Expansion due to Alkali-Silica Reaction in Concrete
Struble, Leslie; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9114313 A000; 01/01/1992; $32,366; 24 mo.

Conference on Nondestructive Evaluation of Civil Structures and Materials
Sture, Stein; Suprenant, Bruce; University of Colorado at Boulder, Boulder, CO 80309
MSS 9113680 A001; 05/15/1991; $9,999; 0 mo.
Jointly Funded with FEDERAL HIGHWAY ADMINISTRATION $9,999

Molecular Dynamics of Icing on Cables and Structures
Sunder, S. Shyam; Yip, Sidney; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 8815942 A002; 12/15/1988; $65,000; 12 mo.

Presidential Young Investigator Award
Synolakis, Costas; University of Southern California, Los Angeles, CA 90089
MSS 8957853 A002; 08/01/1989; $62,500; 12 mo.
MSS 8957853 A003; 08/01/1989; $9,059; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $4,530

Preliminary Research on the Safety of Steel Connections Using System Reliability Techniques
Trautner, Janice; University of Utah, Salt Lake City, UT 84112
MSS 9109024 A000; 12/15/1991; $18,000; 18 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $18,000

Innovative Strengthening Techniques with Composite Materials
Triantafillou, Thanasis; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9015542 A002; 06/01/1991; $50,000; 12 mo.

Developing a Public Awareness of Engineering Benefits to Society
Vernon-Gerstenfeld, Susan; Worcester Polytechnic Institute, Worcester, MA 01609
MSS 9123132 A000; 11/15/1991; $4,000; 6 mo.

Mechanistic Study of the Corrosion of Steel in Concrete
Wheat, Harovel; University of Texas at Austin, Austin, TX 78712
MSS 8921091 A002; 03/01/1990; $54,122; 12 mo.

Intelligent Material Handling Systems: Autonomous Retrieval of Buried Objects
Whittaker, William; Motazed, Behnam; Stentz, Anthony; Carnegie-Mellon University, Pittsburgh, PA 15213
MSS 9114674 A000; 12/01/1991; $150,000; 12 mo.
Jointly Funded with STRUCT SYSTS AND CONSTRCT PROCES $75,000

Behavior of Axially Loaded, Pultruded, Fiber-Reinforced Composite Columns
Zureick, Abdul-Hamid; Georgia Tech Research Corporation - GA Institute of Technology, Atlanta, GA 30332
MSS 8909140 A002; 06/01/1989; $6,602; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $6,602

Structural Systems and Construction Processes

Research Initiation Award: An Object-Oriented Model for Engineering Applications Using a Geographic Database
Adams, Teresa; University of Wisconsin-Madison, Madison, WI 53706
MSS 9010587 A001; 07/01/1990; $10,000; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $8,750

Exploring the Problems in Active Structural Control and Health Monitoring of Existing Constructed Facilities by Utilizing a Decommissioned Steel-Truss Highway Bridge
Aktan, Ahmet; Brown, David; Batta, George; Shelley, Stu; Lee, Kuo-Liang; University of Cincinnati-Main Campus, Cincinnati, OH 45221
MSS 9201913 A000; 08/15/1992; $49,876; 12 mo.

Safety and Performance Enhacement of Structures Through Structural Control
Ang, A. H-S.; University of California-Irvine, Irvine, CA 92717
BCS 9201812 A000; 07/01/1992; $66,147; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS and NAT AND MAN-MADE HAZARD MITIGATI $28,074

The 2nd International Symposium on Uncertainty Modeling and Analysis ISUMA '93 (to be held April 25-28, 1993 in College Park, Maryland)
Ayyub, Bilal; University of Maryland-College Park, College Park, MD 20742
MSS 9116513 A000; 10/01/1992; $8,056; 12 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI $2,000

Experimental and Numerical Study of Room Air and Air Contaminant Distribution
Baker, Allen; Kelso, Richard; University of Tennessee-Knoxville, Knoxville, TN 37996-0140
MSS 9015912 A001; 05/15/1991; $55,000; 12 mo.

A Decomposition Strategy for Optimization of Reinforced Concrete Systems
Balling, Richard; Wilson, Arnold; Brigham Young University, Provo, UT 84602
MSS 8914238 A002; 11/15/1989; $4,992; 6 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $4,992

The Influence of Transverse Material Properties on the Design and Performance of Pultruded, Fiber-Reinforced Plastic Structures
Bank, Lawrence; Catholic University of America, Washington, DC 20064
MSS 9015502 A002; 12/15/1990; $42,000; 12 mo.

Reliability of Real-Time Engineering Software
Baugh, John; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
MSS 9201687 A000; 07/15/1992; $40,864; 12 mo.
Jointly Funded with SOFTWARE ENGINEERING $20,432

Nonlinear and Probabilistic Theory for Concrete Creep
Bazant, Zdenek; Northwestern University, Evanston, IL 60208
MSS 8815166 A005; 01/01/1989; $81,660; 12 mo.
MSS 8815166 A006; 01/01/1989; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $5,000

Internationl Symposium on Creep and Shrinkage of Concrete
Bazant, Zdenek; Northwestern University, Evanston, IL 60208
MSS 9215299 A000; 09/01/1992; $14,227; 18 mo.

Earthquake Stability Problems in Eastern North America
Beedle, Lynn; Fox, Gerard; Lehigh University, Bethlehem, PA 18015
BCS 9123255 A000; 04/01/1992; $20,000; 12 mo.

Workshop on Connections for Building Structures in the 21st Century
Bower, John; Michalerya, William; Lehigh University, Bethlehem, PA 18015
MSS 9203177 A000; 01/01/1992; $9,500; 6 mo.
Jointly Funded with ENGINEERING RESEARCH CENTERS $4,750

Workshops: Metrication in Federal Construction
Brenner, William; National Institute of Building Sciences, Washington, DC 20005
MSS 9121342 A000; 03/01/1992; $10,000; 26 mo.

A Study of Fracture Behavior in High Strength Concrete
Buyukozturk, Oral; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9016814 A001; 12/15/1990; $70,169; 12 mo.

Structure of the Hagia Sophia from the Age of Justinian to the Present
Cakmak, Ahmet; Mark, Robert; Princeton University, Princeton, NJ 08544
MSS 9001601 A002; 06/01/1990; $4,500; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $4,500
MSS 9001601 A003; 06/01/1990; $58,567; 12 mo.
MSS 9001601 A004; 06/01/1990; $2,000; 0 mo.
Jointly Funded with GEOMECHAN, GEOTECH, AND GEOENVIRN $2,000

US China Symposium/Workshop on Recent Developments and Future Trends of Computational Mechanics in Structural Engineering (Beijing, China; September 24-28, 1991)
Cheng, Franklin; University of Missouri-Rolla, Rolla, MO 65401
MSS 9112311 A001; 06/15/1991; $3,000; 0 mo.

Multi-Objective Optimization of Three-Dimensional Flexible and Stiff Structures with Compromise and Game Algorithms
Cheng, Franklin; University of Missouri-Rolla, Rolla, MO 65401
MSS 9214664 A000; 09/01/1992; $80,000; 24 mo.
Jointly Funded with STRUCTURAL SYSTEMS $80,000

Experimental and Numerical Study of Room Air and Air Contaminant Distribution
Christianson, Leslie; Riskowski, Gerald; Wu, Gwojenn; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9002513 A001; 11/15/1990; $43,932; 12 mo.
MSS 9002513 A002; 11/15/1990; $8,500; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $7,438

Significance of Paste-Sand Interfaces in Micromechanical Behavior of Concrete
Cohen, Menashi; Chen, Wai-Fah; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 9202134 A000; 07/01/1992; $45,950; 12 mo.
Jointly Funded with MATERIALS ENGINEERING $35,000

Special Workshop Entitled: The Establishment of an Institute for Emerging Constructed Systems
Connor, Jerome; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 9208710 A000; 02/15/1992; $21,000; 6 mo.
Jointly Funded with GEOMECHAN, GEOTECH, AND GEOENVIRN and LARGE STRUCTURAL AND BLDG SYSTEMS $14,000

Estimation of Extreme Probability Distribution Tails: Application to Extreme Wind Speeds
Corotis, Ross; Karr, Alan; Simiu, Emil; Johns Hopkins University, Baltimore, MD 21218
BCS 9013116 A001; 02/15/1991; $44,537; 12 mo.

Structural System Reliability and Optimization - Incorporating Nonlinear Mechanics in Mathematical Programming Approaches
Corotis, Ross; Ramirez, Martin; Johns Hopkins University, Baltimore, MD 21218
MSS 9016018 A001; 02/15/1991; $56,680; 12 mo.
MSS 9016018 A002; 02/15/1991; $4,672; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $4,672

Improving Development Characteristics of Reinforcing Bars
Darwin, David; McCabe, Steven; University of Kansas Center for Research Inc., Lawrence, KS 66044
MSS 9021066 A001; 03/15/1991; $4,999; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $3,749
MSS 9021066 A002; 03/15/1991; $62,610; 12 mo.

Engineering Foundation Conference: Composite Construction II: June 14-19, 1992 in Potosi, Missouri
Darwin, David; Buckner, C. Dale; United Engineering Trustees Inc., New York, NY 10017
MSS 9114089 A000; 02/01/1992; $25,000; 12 mo.

An Investigation into Methods for Expediting the Transfer of CAD and KBES Technologies for Improved Construction Estimating
De La Garza, Jesus; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 8908570 A001; 08/01/1989; $5,000; 4 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $5,000

Application of Artificial Intelligence Techniques to Develop Computer-Aided Value Engineering (CAVE) Technology
De La Garza, Jesus; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9215722 A000; 08/01/1992; $60,000; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $30,000

Presidential Young Investigator Award
Deierlein, Gregory; Cornell University - Endowed, Ithaca, NY 14853
MSS 9058005 A001; 10/01/1990; $58,700; 12 mo.

Anchorage for Synthetic Prestressing Tendons
Dolan, Charles; University of Wyoming, Laramie, WY 82071
MSS 9114592 A000; 12/15/1991; $52,919; 12 mo.
MSS 9114592 A001; 12/15/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $5,000

Structures, Geomechanics, and Building Systems for the 21st Century
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
MSS 9116411 A000; 12/15/1991; $120,000; 12 mo.
Jointly Funded with GEOMECHAN, GEOTECH, AND GEOENVIRN $80,000

Support of the Federal Construction Council
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
MSS 9203138 A000; 04/01/1992; $25,000; 12 mo.

Travel Grants: U.S. National Committee for Theoretical and Applied Mechanics, to be held in Haifa, Israel, August 22-28, 1992
Dwoskin, Gary; National Academy of Sciences, Washington, DC 20418
CTS 9206382 A000; 03/01/1992; $20,000; 12 mo.
Jointly Funded with PARTICULATE AND MULTIPHASE PROC and MATERIALS PROCESSING AND MANUFCT $6,666

Research Initiation Award: A Neural Network Approach to the Simulation of Construction Processes
Flood, Ian; University of Maryland-College Park, College Park, MD 20742
MSS 9210721 A000; 09/01/1992; $4,060; 12 mo.

Multi-Objective Realiability-Based Optimization of Structural Systems
Frangopol, Dan; University of Colorado at Boulder, Boulder, CO 80309
MSS 9013017 A001; 12/01/1990; $51,990; 12 mo.

A CAD Expert System for Structural Design of Repairs
Fujimoto, William; Advanced Structural Technology Inc., University City, MO 63130
III 9160886 A000; 01/01/1992; $49,980; 6 mo.

Limit-State Performance of Reinforced Concrete Columns Made with Materials of Extraordinary Strength
Furlong, Richard; University of Texas at Austin, Austin, TX 78712
MSS 9017042 A001; 02/15/1991; $50,120; 12 mo.

Active Control of Structures Using Neural Networks
Ghaboussi, Jamshid; Wen, Y.; Paul, Stanley; University of Illinois at Urbana-Champaign, Urbana, IL 61801
BCS 9201437 A000; 06/15/1992; $46,439; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS and NAT AND MAN-MADE HAZARD MITIGATI $25,000

Modified Eigenvalue Problems, with Application to Structural Dynamic Re-Analysis on Parallel Computers
Golub, Gene; Law, Kincho; Stanford University, Stanford, CA 94305
ECS 9003107 A001; 09/01/1990; $18,151; 0 mo.

Research Initiation Award: Computer Aided Critical Lift Planning
Haas, Carl; University of Texas at Austin, Austin, TX 78712
MSS 9211421 A000; 09/01/1992; $40,000; 12 mo.

Structural Control for Earthquakes and Wind Storms Using Active Structural Members
Hanson, Robert; Filisko, Frank; McClamroch, Nathaniel; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9201787 A000; 07/15/1992; $103,448; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS and STRUCTURAL SYSTEMS $53,000

Evaluation of Condition of Structures from Transient Response
Hearn, George; University of Colorado at Boulder, Boulder, CO 80309
MSS 9102379 A001; 05/01/1991; $2,500; 0 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT and CROSS-DIRECTORATE PROGRAMS $2,500
MSS 9102379 A002; 05/01/1991; $44,843; 12 mo.

Presidential Young Investigator Award
Howard, H. Craig; Stanford University, Stanford, CA 94305
MSS 8958316 A002; 10/01/1989; $100,000; 12 mo.

Shear in High-Strength Concrete Membrane Elements
Hsu, Thomas; University of Houston, Houston, TX 77204
MSS 9114543 A001; 10/01/1991; $31,488; 0 mo.

Preserving Historic Buildings of Major Importance
Hynes, Mary; Department of Army Waterways Experiment Station, Vicksburg, MS 39180
MSS 9214843 A000; 04/15/1992; $48,000; 9 mo.
Jointly Funded with HUMAN RESOURCES DEVELOPMENT $14,500

Development of Resistance Models for Wood Formworks
Karshenas, Saeed; Marquette University, Milwaukee, WI 53233
MSS 9002571 A001; 12/01/1990; $5,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $1,250

Mathematical Sciences: NATO Advanced Research Workshop
Kohn, Robert; New York University, New York, NY 10012
MSS 9211780 A000; 04/15/1992; $4,000; 12 mo.
Jointly Funded with APPLIED MATHEMATICS $2,000

A Dynamic Monitoring System for Steel Structures
Lee, George; Chang, Kuo-Chun; SUNY at Buffalo, Buffalo, NY 14260
MSS 9202327 A000; 08/01/1992; $28,266; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $10,000

Fracture Testing Technology for Advanced Ceramic and Cementitious Matrix-Based Composites
Li, Victor; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9019156 A001; 08/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000

Damage Modeling of Heterogeneous Materials
Lin, Feng-Bao; Polytechnic University, Brooklyn, NY 11201
MSS 9114048 A000; 11/01/1991; $112,448; 24 mo.

Multi-Scale Methods for Structural Dynamics
Liu, Wing; Northwestern University, Evanston, IL 60208
MSS 9015978 A001; 06/15/1991; $52,534; 12 mo.

Development and Performance of a Nationwide Civil Engineering Research and Development Survey
Magnell, Carl; Bernstein, Harvey; Civil Engineering Research Foundation, Washington, DC 20005
MSS 9211779 A000; 04/15/1992; $62,824; 10 mo.
Jointly Funded with LARGE STRUCTURAL AND BLDG SYSTMS and GEOMECHAN, GEOTECH, AND GEOENVIRN $37,216

Research Initiation Award: Dynamic Behavior and Response of Truss Structures After the Onset of Progressive Collapse
Malla, Ramesh; University of Connecticut, Storrs, CT 06268
MSS 9110900 A001; 07/01/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $10,000

Presidential Young Investigator Award
McGee, Oliver; Ohio State University Research Foundation, Columbus, OH 43210
MSS 9157972 A001; 07/15/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $2,500

Damage Prediction for Concrete With and Without Fibre Reinforcement
Meyer, Christian; Columbia University, New York, NY 10027
MSS 9113127 A001; 10/01/1991; $59,255; 12 mo.

Computational Abstractions for Dynamic Nonlinear Analysis of Structures
Miller, Gregory; University of Washington, Seattle, WA 98195
MSS 9203140 A000; 05/15/1992; $38,268; 12 mo.
Jointly Funded with COMPUTATIONAL ENGINEERING $30,000

Control and Performance of Centralized Heating and Cooling Systems
Mitchell, John; Klein, S.; Beckman, William; University of Wisconsin-Madison, Madison, WI 53706
MSS 8921586 A001; 11/15/1990; $80,000; 12 mo.

Intelligent Material Handling Systems: Integrated Modelling and Control for Intelligent Material Handling
Mitchell, Owen; Harbison-Briggs, Karan; Lewis, Frank; University of Texas at Arlington, Arlington, TX 76019
MSS 9114009 A001; 09/01/1991; $15,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $12,500

Research Initiation Award: Evaluation of Processing Techniques for Manufacturing High-Performance Cement-Based Composites
Mobasher, Barzin; Arizona State University, Tempe, AZ 85287
MSS 9211063 A000; 08/15/1992; $39,229; 12 mo.

Chaotic Dynamics of Elasto-Plastic Structures: Experiments and Novel Computational Methods
Moon, Francis; Mukherjee, Subrata; Cornell University - Endowed, Ithaca, NY 14853
MSS 9016626 A001; 04/01/1991; $75,000; 12 mo.
Jointly Funded with COMPUTATIONAL MATHEMATICS and DYNAMIC SYSTEMS AND CONTROL $20,000

Structural and Geomechanics Systems Grantees Conference
Munoz, Rafael; Rodriguez-Agrait, Leandro; Suarez, Luis; Macari, Emir; University of Puerto Rico-Mayaguez, Mayaguez, PR 00709
MSS 9121402 A000; 11/15/1991; $54,832; 12 mo.
Jointly Funded with GEOMECHAN, GEOTECH, AND GEOENVIRN $27,415

Control of Occupant-Induced Floor Motion
Murray, Thomas; Schneck, Daniel; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9201944 A000; 08/15/1992; $50,000; 12 mo.

Lateral Confinement of Concrete Using High-Strength Fiber Reinforcement
Nanni, Antonio; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9108598 A001; 09/15/1991; $10,000; 0 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $10,000
MSS 9108598 A002; 09/15/1991; $9,822; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $8,595

Fiber-Optic Sensors for Strength Evaluation and Early Warning of Impending Failure in Structural Components
Nawy, Edward; Maher, Mohamad; Shahriari, Mahmoud; Sigel, George; Rutgers University-Busch Campus, Piscataway, NJ 08854-1089
MSS 9018572 A002; 11/15/1990; $92,023; 12 mo.

Intelligent Material Handling Systems: An Enabling Environment for Design and Control of Intelligent Material Handling Systems
Palekar, Udatta; Ferreira, Placid; Kapoor, Shiv; Tsao, Tsu-Chin; Hutchinson, Seth; University of Illinois at Urbana-Champaign, Urbana, IL 61801
DDM 9114001 A001; 09/15/1991; $151,871; 12 mo.
Jointly Funded with ROBOTICS AND MACHINE INTELLIGE $100,000

Wearable Information Systems for Construction Site Management
Pasquale, Angelo; Frontier Systems Inc., Pittsburgh, PA 15219
III 9160772 A000; 01/01/1992; $50,000; 6 mo.

An Object-Oriented Approach for Integrated Project Management Software
Paulson, Boyd; Stanford University, Stanford, CA 94305
MSS 9114095 A000; 11/15/1991; $140,020; 24 mo.

Post-Buckling Behavior and Imperfection Sensitivity of Space Trusses with Multiple Eigenmodes
Peek, Ralf; Triantafyllidis, Nicolas; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9103227 A001; 05/01/1991; $61,003; 12 mo.

Dynamic Behavior of Inflatable Dams
Plaut, Raymond; Reddy, J.; Walker, Dana; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9008518 A001; 12/01/1990; $66,854; 12 mo.

U.S.-Turkey Workshop on Fly Ash, Silica Fume, Slag, and Natural Pozzolans in Concrete; May 9, 1992; Istanbul, Turkey
Ramakrishnan, V.; South Dakota School of Mines and Technology, Rapid City, SD 57701
INT 9213417 A000; 05/01/1992; $19,700; 4 mo.

Presidential Young Investigator Award: Engineering Design Database Research
Rasdorf, William; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
MSS 8451465 A009; 09/15/1985; $50,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $12,500

Presidential Young Investigator Awards
Rogers, Craig; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9157080 A001; 07/15/1991; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $8,750

Recent Advances in Adaptive and Sensory Materials and Their Applications Conference; April 27-29, 1992; Blacksburg, Virginia
Rogers, Craig; Feuerbach, Nancy; Virginia Polytechnic Institute and State University, Blacksburg, VA 24061
MSS 9210446 A000; 04/01/1992; $10,000; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS $5,000

Second International Conference on Snow Engineering; June 21-26, 1992; Santa Barbara, California
Sack, Ronald; University of Oklahoma-Norman Campus, Norman, OK 73019
MSS 9108089 A000; 01/15/1992; $21,000; 12 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI $5,000

S/C: Structural Control for Phase-Related Inputs
Sack, Ronald; Patten, William; Ebrahimpour, Arya; University of Oklahoma-Norman Campus, Norman, OK 73019
MSS 9202731 A000; 08/01/1992; $79,343; 12 mo.

Presidential Young Investigator Award
Sansalone, Mary; Cornell University - Endowed, Ithaca, NY 14853
MSS 8957131 A003; 07/01/1989; $62,500; 12 mo.

Presidential Young Investigator Award
Sanvido, Victor; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9058545 A003; 08/15/1990; $10,000; 0 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS and HUMAN RESOURCES DEVELOPMENT $8,750

Rate of Loading Dependency of Reinforced Concrete
Scanlon, A.; Shah, Surendra; Nanni, Antonio; Pennsylvania State Univ.-University Park, University Park, PA 16801
MSS 9021995 A001; 06/01/1991; $69,261; 12 mo.

Presidential Young Investigator Award: Construction Automation
Skibniewski, Miroslaw; Purdue University Research Foundation, West Lafayette, IN 47907
MSS 8657142 A005; 07/15/1987; $37,500; 0 mo.

Presidential Young Investigator Award
Slocum, Alexander; Massachusetts Institute of Technology, Cambridge, MA 02139
MSS 8857749 A003; 10/01/1988; $62,500; 12 mo.

State Dependent Queues, Facilities, and Finite Queueing Network Models
Smith, James; University of Massachusetts-Amherst, Amherst, MA 01003
MSS 9116666 A000; 12/15/1991; $119,700; 24 mo.

US/PRC/Japan Trilateral Seminar/Workshop on Structural Control
Soong, Tsu-Teh; SUNY at Buffalo, Buffalo, NY 14260
BCS 9216282 A000; 07/01/1992; $20,600; 12 mo.

A Spectral Approach for Analyzing Structures with Random Parameters
Spanos, Pol; William Marsh Rice University, Houston, TX 77252
MSS 9020714 A001; 02/01/1991; $57,984; 12 mo.

Equipment for Dynamic Experiments
Stanton, John; Holtz, Robert; Reed, Dorothy; Haraldsdottir, Aslaug; Roeder, Charles; University of Washington, Seattle, WA 98195
BCS 9109346 A000; 11/01/1991; $85,000; 16 mo.
Jointly Funded with SITING AND GEOTECHNICAL SYSTEMS and STRUCTURAL SYSTEMS $40,000

Plastic Instability Phenomena with Aspects of Chaos of Fixed-Edge Structures Subjected to Short Pulse Loading
Symonds, Paul; Kolsky, Herbert; Brown University, Providence, RI 02912
MSS 9024607 A001; 07/15/1991; $51,473; 12 mo.

Scheduling Construction Projects by Using Product Models and Learning from Cases
Tommelein, Iris; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
MSS 9215935 A000; 08/01/1992; $62,774; 12 mo.
Jointly Funded with CROSS-DIRECTORATE PROGRAMS $16,217

Integrated Data Exchange and Concurrent Designs for Engineered Facilities
Ullman, Jeffrey; Law, Kincho; Howard, H. Craig; Teicholz, Paul; Stanford University, Stanford, CA 94305
IRI 9116646 A001; 09/15/1991; $150,000; 12 mo.
Jointly Funded with ROBOTICS AND MACHINE INTELLIGE $50,000

Response of Structural Glazing Systems to Dynamic Loads and Extreme Environments
Vallabhan, C.V. Girija; Tock, Richard; Texas Tech University, Lubbock, TX 79409
MSS 9007911 A001; 02/01/1991; $50,128; 12 mo.
Jointly Funded with NAT AND MAN-MADE HAZARD MITIGATI $10,000

Diffuse Fields in Structural Acoustics and Ultrasonics
Weaver, Richard; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9114360 A000; 04/15/1992; $71,376; 12 mo.

Intelligent Material Handling Systems: Autonomous Retrieval of Buried Objects
Whittaker, William; Motazed, Behnam; Stentz, Anthony; Carnegie-Mellon University, Pittsburgh, PA 15213
MSS 9114674 A000; 12/01/1991; $150,000; 12 mo.
Jointly Funded with LARGE STRUCTURAL AND BLDG SYSTMS $75,000

Dynamic Stability of Structural Degradation
Willam, Kaspar; University of Colorado at Boulder, Boulder, CO 80309
MSS 9203047 A000; 06/15/1992; $34,804; 12 mo.

International Union of Theoretical and Applied Mechanics (IUTAM) Symposium Support
Wu, Yih-Tsueu; Southwest Research Institute, San Antonio, TX 78201
MSS 9215535 A000; 07/01/1992; $10,000; 18 mo.

Active Control of Structure Instrumented with Optical Fiber Sensors Under Earthquake Loading
Yang, Jackson; Sirkis, James; Amini, Farshad; Qi, Gui-Zhong; University of Maryland-College Park, College Park, MD 20742
BCS 9202159 A000; 07/01/1992; $58,253; 12 mo.
Jointly Funded with STRUCTURAL SYSTEMS and NAT AND MAN-MADE HAZARD MITIGATI $27,836

Structural Instability Behavior and Material Failure of J-Stiffened Composite Fuselage Panels
Yeh, Hsien-Yang; Chen, Victor; California State University-Long Beach Foundation, Long Beach, CA 90815
MSS 9213705 A000; 08/15/1992; $15,500; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $15,500

Theoretical and Experimental Studies of Failure in Anisotropic Curved Layered Structure
Yuan, Fuh-Gwo; North Carolina State University at Raleigh, Raleigh, NC 27695-8208
MSS 9202223 A000; 05/01/1992; $51,489; 12 mo.
MSS 9202223 A001; 05/01/1992; $10,000; 0 mo.

Special Programs

A System for Micro-Mechanical Spring Design
Antonsson, Erik; Tai, Yu-Chong; California Institute of Technology, Pasadena, CA 91125
ECS 9023646 A001; 08/15/1991; $75,260; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $37,630

Selection and Management of U.S. Geotechnical Experimentation Sites
Benoit, Jean; De Alba, Pedro; University of New Hampshire-Durham, Durham, NH 03824
MSS 9215445 A000; 09/01/1992; $300,000; 12 mo.
Jointly Funded with TRANSPORTATION-FHWA CAN DISSEM and
TRANSPORTATION-WORKSHOP TO SEL $42,500

Efficient Computer Simulation Program for a General Class of Mechanical Systems
Chen, Jigien; K & D Research, Silver Spring, MD 20904
III 9160264 A000; 08/01/1992; $48,932; 6 mo.

Computational Modeling of Transport Phenomena and Electromechanical Dynamics in Microscales
Cho, Dongil; Karniadakis, George; Princeton University, Princeton, NJ 08544
ECS 9023760 A001; 07/15/1991; $153,271; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $76,637

A Study of the Coupled Hydraulic-Mechanical Behavior of Jointed Rock Masses
Cording, Edward; Gabriel, Fernandez; Ghaboussi, Jamshid; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9215622 A000; 09/01/1992; $45,363; 12 mo.

Fifth Annual Workshop on Aerospace Computational Control; Santa Barbara,CA
Doyle, John; Man, Guy; California Institute of Technology, Pasadena, CA 91125
MSS 9220553 A000; 09/15/1992; $9,952; 12 mo.

REG: Data Acquisition for Mechanical Rock Excavation Research
Gertsch, Leslie; Ozdemir, Levent; Gertsch, Richard; Colorado School of Mines, Golden, CO 80401
MSS 9213050 A000; 09/01/1992; $48,590; 12 mo.

Polymeric Ultrathin Films as Bonded Lubricants, Coatings, and Membranes
Grainger, David; Oregon Graduate Institute of Science and Technology, Beaverton, OR 97006-1999
MSS 9212496 A000; 09/01/1992; $54,617; 36 mo.

Microstructural Modeling and Probabilistic Prediction of Micro-Electro-Mechanical Systems Response
Johnson, George; Der Kiureghian, Armen; Ferrari, Mauro; University of California-Berkeley, Berkeley, CA 94720
ECS 9023714 A001; 08/01/1991; $187,606; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $93,802

NSF Young Investigator
Johnson, Peggy; University of Maryland-College Park, College Park, MD 20742
MSS 9258648 A000; 08/15/1992; $25,000; 12 mo.

Theoretical Modeling of Micro-Electro-Mechanical Systems
Ko, Wen; Hoffman, Richard; Mehregany, Mehran; Mullen, Robert; Case Western Reserve University, Cleveland, OH 44106
ECS 9023711 A001; 06/15/1991; $104,320; 12 mo.
Jointly Funded with MICROELECTROMECHANICAL RESEARC $45,000

Passive Smart Cementitious Composites for Dynamic Control Structures: Internal Timed Release of Chemicals for Self-Repair of Crack Damage
Li, Victor; Dry, Carolyn; University of Michigan-Ann Arbor, Ann Arbor, MI 48109-1220
BCS 9202097 A000; 09/15/1992; $150,000; 12 mo.
Jointly Funded with ARCHITECTURE AND MECHAN SYSTEMS $100,639

Experimental Studies in Mechanical Systems Under Harmonic and Stochastic Excitations
Namachchivaya, N. Sri; University of Illinois at Urbana-Champaign, Urbana, IL 61801
MSS 9212959 A000; 10/01/1992; $40,000; 12 mo.

Unsteady Diffusion Through Isotropic and Anisotropic Non-Linearly Elastics Solids Undergoing Large Deformations
Rajagopal, K.; University of Pittsburgh, Pittsburgh, PA 15260
MSS 8917747 A002; 07/15/1990; $19,470; 0 mo.
Jointly Funded with AIR FORCE-NON-HOMOGENEOUS DEF $19,470

NSF Young Investigator
Saadatmanesh, Hamid; University of Arizona, Tucson, AZ 85721
MSS 9257344 A000; 09/01/1992; $25,000; 12 mo.

Methodology to Apply Unrestricted Consolidation Theory to Practice
Schiffman, Robert; University of Colorado at Boulder, Boulder, CO 80309
MSS 9212634 A000; 08/01/1992; $35,000; 12 mo.
Jointly Funded with TRANSPORTATION (FHA) $17,500

Comprehensive Investigations of Piezocone Penetration Tests in a Clay Calibration Chamber and Comparison with Field Test Data
Voyiadjis, George; Louisiana State University-Baton Rouge, Baton Rouge, LA 70803-4101
MSS 9213807 A000; 09/01/1992; $35,000; 12 mo.

Transportation

Pile-Friction-Freeze Effects - A Lab Prediction Study and Field Demo
McVay, Michael; Schmertmann, John; University of Florida, Gainesville, FL 32611
MSS 9205247 A000; 10/15/1992; $100,000; 12 mo.