APPENDIX 1

WORKSHOP AGENDA

NATIONAL SCIENCE BOARD WORKSHOP

BROADENING PARTICIPATION
IN SCIENCE AND ENGINEERING
RESEARCH AND EDUCATION

August 12, 2003
National Science Foundation
4201 Wilson Boulevard, Room 1235
Arlington, Virginia

8:30 Introductions and Opening Remarks
George Langford — Chair, Committee on Education and Human Resources, National Science Board
Rita Colwell — Director, National Science Foundation

9:00 Models of Success for Broadening Participation
Joe Bordogna – Deputy Director, National Science Foundation
(Panel Moderator)
Shirley Tilghman – President, Princeton University
Shirley Ann Jackson – President, Rensselaer Polytechnic Institute
Norbert S. Hill, Jr. – Executive Director, American Indian Graduate Center

- *Panelists will discuss successful models for expanding diversity of faculty and students in science and engineering.*

10:30 Changing Demographics and Challenges of the Future
Diana Natalicio – President, University of Texas at El Paso, and Vice Chair, National Science Board
(Panel Moderator)
Beverly Tatum – President, Spelman College
Shirley Malcom – American Association for the Advancement of Science
Richard Tapia – Noah Harding Professor of Computational & Applied Mathematics, Rice University

- *Panelists will discuss the current and projected demographic profiles of faculty and students at our nation's colleges and universities. Special issues associated with achieving a more diverse faculty in science and engineering research and education will be identified.*

11:30 Working Lunch and Breakout Sessions

- *Panelists and invited guests breakout into small groups to address questions developed during the morning sessions*

NATIONAL SCIENCE BOARD WORKSHOP

BROADENING PARTICIPATION IN SCIENCE AND ENGINEERING RESEARCH AND EDUCATION

(Continued)

1:00 Diversity Gap between Students and Faculty

Esin Gulari – Division Director, NSF/ENG Division of Chemical & Transport Systems *(Panel Moderator)*
Evelyn Hu-Dehart – Director, Center for the Study of Race & Ethnicity in America, Brown University
Lilian Shiao-Yen Wu – Program Executive, University Relations, IBM Corporate Technology
Emilio Bruna – Assistant Professor, University of Florida

- *Panelists will discuss issues affecting faculty diversity.*

2:30 Reports from Breakout Sessions

- *A spokesperson from each breakout group will be asked to provide a brief summary of issues discussed during the working lunch. This discussion is designed to provide broader input to policy development.*

3:00 Policy Options Development

Judith Ramaley – Assistant Director, NSF Directorate for Education and Human Resources *(Panel Moderator and Presenter)*
Clifton A. Poodry – Director, Division of Minority Opportunities in Research, National Institute of General Medical Sciences, NIH
Willie Pearson Jr. – Chair, School of History, Technology and Society, Georgia Institute of Technology

- *Panelists will discuss recommendations designed to broaden participation of women and minorities in science, math and engineering.*

4:00 Closing Remarks

APPENDIX 2
PRESENTER BIOGRAPHIES

GEORGE LANGFORD, CHAIR, COMMITTEE ON EDUCATION AND HUMAN RESOURCES, NATIONAL SCIENCE BOARD

Dr. George Langford

George Langford earned Master's and Ph.D. degrees in cell biology from the Illinois Institute of Technology. Dr. Langford has been at Dartmouth College since 1991 and currently holds the position of Ernest Everett Just Professor of Natural Sciences and professor of biological sciences. At Dartmouth, he established the E.E. Just Program, which provides internships to minority students in the sciences. In addition, he is an adjunct professor of physiology at Dartmouth Medical School. He was appointed to the National Science Board in 1998 and chairs the Board's Education and Human Resources Committee.

Dr. Langford took his first faculty position at the University of Massachusetts in Boston before moving to Howard University College of Medicine. In 1979 Langford joined the faculty of the University of North Carolina at Chapel Hill School of Medicine. Since the early years of his career, he has maintained a research laboratory at the Marine Biological Laboratory in Woods Hole, Massachusetts. Langford's primary area of research has been the study of molecular motors and the movements of the components in nerve cells. In 1992, Dr. Langford and his colleagues were the first to demonstrate that special filaments, long known to be responsible for the movement of muscle cells, were also responsible for the movement of particles within nerve cells.

From 1988 to 1989, Langford was the program director for the Cell Biology Program at the National Science Foundation. He has also served as chair of the Science Council for the Marine Biological Laboratory in Woods Hole and is a member of the American Society for Cell Biology, the American Association for the Advancement of Science and the North Carolina Society for Electron Microscopy and Microbeam Analysis.

Dr. Rita Colwell

Rita Colwell holds a B.S. in Bacteriology and an M.S. in Genetics from Purdue University and a Ph.D. in Oceanography from the University of Washington. Dr. Colwell became the 11th Director of the National Science Foundation on August 4, 1998. Since taking office, Dr. Colwell has spearheaded the agency's emphases on K-12 science and mathematics education, graduate science and engineering education/training, and the increased participation of women and minorities in science and engineering.

Her policy approach has enabled the agency to strengthen its core activities, as well as establish support for major initiatives, including Nanotechnology, Biocomplexity, Information Technology, Social, Behavioral and Economic Sciences and the 21st Century Workforce. In her capacity as NSF Director, she serves as Co-chair of the Committee on Science of the National Science and Technology Council.

Before coming to the NSF, Dr. Colwell was President of the University of Maryland Biotechnology Institute and she remains Professor of Microbiology and Biotechnology at the University of Maryland.

Dr. Colwell has held many advisory positions in the U.S. Government, non-profit science policy organizations, and private foundations, as well as in the international scientific research community. She is a nationally respected scientist and educator and has authored or co-authored 16 books and more than 600 scientific publications. She produced the award-winning film, *Invisible Seas*, and has served on editorial boards of numerous scientific journals.

She is the recipient of numerous awards, including the Medal of Distinction from Columbia University, the Gold Medal of Charles University, Prague, the UCLA Medal from the University of California, Los Angeles, and the Alumna Summa Laude Dignata from the University of Washington, Seattle.

Dr. Colwell has also been awarded 34 honorary degrees from institutions of higher education, including her Alma Mater, Purdue University. Dr. Colwell is an honorary member of the microbiological societies of the United Kingdom, France, Israel, Bangladesh, and the U.S. and has held several honorary professorships, including at the University of Queensland, Australia. A geological site in Antarctica, Colwell Massif, has been named in recognition of her work in the polar regions.

Dr. Colwell has previously served as Chairman of the Board of Governors of the American Academy of Microbiology and also as President of the American Association for the Advancement of Science, the Washington Academy of Sciences, the American Society for Microbiology, the Sigma Xi National Science Honorary Society, and the International Union of Microbiological Societies. She served as a member of the National Science Board from 1984 to 1990. Dr. Colwell is a member of the National Academy of Sciences, the American Academy of Arts and Sciences, and the American Philosophical Society.

Dr. Joseph Bordogna

Joseph Bordogna received B.S.E.E. and Ph.D. degrees from the University of Pennsylvania and a S.M. degree from the Massachusetts Institute of Technology. Dr. Bordogna is Deputy Director and Chief Operating Officer of the National Science Foundation and served previously as head of the NSF's Directorate for Engineering. Complementing his NSF duties, he is a member of the President's Management Council; has chaired Committees on Manufacturing, Environmental Technologies, and Automotive Technologies within the President's National Science and Technology Council; and was a member of the U.S.-Japan Joint Optoelectronics Project.

Prior to appointment at the NSF, he served at the University of Pennsylvania as Alfred Fitler Moore Professor of Engineering, Director of The Moore School of Electrical Engineering, Dean of the School of Engineering and Applied Science, and Faculty Master of Stouffer College House, a living-learning student residence at the University.

Dr. Bordogna has made contributions to the engineering profession in a variety of areas including early laser communications systems, electro-optic recording materials, holographic television playback systems and early space capsule recovery. He was a founder of PRIME (Philadelphia Regional Introduction for Minorities to Engineering) and served on the Board of The Philadelphia Partnership for Education, community coalitions providing, respectively, supportive academic programs for K-12 students and teachers.

He is a Fellow of the American Association for the Advancement of Science, the American Society for Engineering Education, the Institute of Electrical and Electronics Engineers and the International Engineering Consortium. He also served his profession globally as president of the IEEE.

Dr. Shirley Ann Jackson

Shirley Ann Jackson holds a S.B. in physics from M.I.T. and a Ph.D. in theoretical elementary particle physics from M.I.T. Dr. Jackson became the 18th president of Rensselaer Polytechnic Institute on July 1, 1999. Her current research specialty is in theoretical condensed matter physics, especially layered systems, and the physics of opto-electronic materials.

Dr. Jackson's career prior to becoming Rensselaer's president has encompassed senior positions in government, in industry and research, and in academia. In 1995 President William Clinton appointed Dr. Jackson to serve as Chairman of the U.S. Nuclear Regulatory Commission (NRC). Dr. Jackson was Chairman of the NRC from 1995-1999. As Chairman, she was the principal executive officer of and the official spokesman for the NRC. She had ultimate authority for all NRC functions pertaining to an emergency involving an NRC licensee. Dr. Jackson represented the United States from 1995 to 1998 as a delegate to the General Conference of the International Atomic Energy Agency in Vienna, Austria.

From 1991 to 1995, Dr. Jackson was professor of physics at Rutgers University and from 1976 to 1991 Dr. Jackson conducted research in theoretical physics, solid state and quantum physics, and optical physics at AT&T Bell Laboratories in Murray Hill, New Jersey.

Dr. Jackson will become president of the American Association for the Advancement of Science (AAAS) in February 2004. Dr. Jackson will serve as president-elect in 2003, as president in 2004, and will chair the AAAS board in 2005. Dr. Jackson is a trustee at several universities and holds 21 honorary doctoral degrees. She is a member of the National Academy of Engineering as well as a Fellow of the American Academy of Arts and Sciences, the American Physical Society and numerous other professional organizations.

Dr. Jackson is the first African-American woman to receive a doctorate from M.I.T. in any subject. She is one of the first two African-American women to receive a doctorate in physics in the U.S. She is the first African-American to become a Commissioner of the U.S. Nuclear Regulatory Commission. She is both the first woman and the first African-American to serve as the chairman of the U.S. Nuclear Regulatory Commission and now the first African-American woman to lead a national research university. She also is the first African-American woman elected to the National Academy of Engineering.

Dr. Jackson was inducted into the National Women's Hall of Fame in 1998 for her significant and profound contributions as a distinguished scientist and advocate for education, science, and public policy.

Dr. Shirley Tilghman

Shirley M. Tilghman received her Honors B.Sc. in chemistry from Queen's University in Kingston, Ontario, and after two years of secondary school teaching in Sierra Leone, West Africa, she obtained her Ph.D. in biochemistry from Temple University. She was elected Princeton University's 19th president on May 5, 2001 and assumed office on June 15, 2001. Dr. Tilghman came to Princeton in 1986 as the Howard A. Prior Professor of the Life Sciences. Two years later, she also joined the Howard Hughes Medical Institute as an investigator. In 1998, she took on additional responsibilities as the founding director of Princeton's multi-disciplinary Lewis-Sigler Institute for Integrative Genomics.

During postdoctoral studies at the National Institutes of Health, she made a number of groundbreaking discoveries while participating in cloning the first mammalian gene, then continued to make scientific breakthroughs as an independent investigator at the Institute for Cancer Research in Philadelphia and an adjunct associate professor of human genetics and biochemistry and biophysics at the University of Pennsylvania.

A member of the National Research Council's committee that set the blueprint for the U.S. effort in the Human Genome Project, Dr. Tilghman also was one of the founding members of the National Advisory Council of the Human Genome Project Initiative for the National Institutes of Health. She is renowned not only for her pioneering research, but for her national leadership on behalf of women in science and for promoting efforts to make the early careers of young scientists as meaningful and productive as possible. She received national attention for a report on "Trends in the Careers of Life Scientists" that was issued in 1998 by a committee she chaired for the National Research Council and she has helped launch the careers of many scholars as a member of the Pew Charitable Trusts Scholars Program in the Biomedical Sciences Selection Committee and the Lucille P. Markey Charitable Trust Scholar Selection Committee.

From 1993 through 2000, Dr. Tilghman chaired Princeton's Council on Science and Technology, which encourages the teaching of science and technology to students outside the sciences and in 1996 she received Princeton's President's Award for Distinguished Teaching. She initiated the Princeton Postdoctoral Teaching Fellowship, a program across all the science and engineering disciplines that brings postdoctoral students to Princeton each year to gain experience in both research and teaching.

In 2002, Dr. Tilghman was one of five winners of the L'Oréal-UNESCO International for Women in Science Award, and the following year received the Lifetime Achievement Award from the

Society of Developmental Biology. She also was selected in 2003 by New Jersey Governor James E. McGreevey to co-chair the state's new Commission on Jobs Growth and Economic Development.

Dr. Tilghman is a member of the American Physical Society, the National Academy of Sciences, the Institute of Medicine and the Royal Society of London, the Advisory Council to the Director of the National Institutes of Health, the Scientific Advisory Board of the Whitehead Institute for Biomedical Sciences at the Massachusetts Institute of Technology and a trustee of the Jackson Laboratory.

Dr. Norbert S. Hill, Jr.

Norbert S. Hill, Jr. earned a B.S. in Sociology/Anthropology and an M.S. in Guidance Counseling from the University of Wisconsin. He is Executive Director of the American Indian Graduate Center in Albuquerque, New Mexico. Mr. Hill has devoted his professional career to helping Native Americans rebuild Indian communities, primarily through education.

Mr. Hill was Assistant Dean of Students at the University of Wisconsin-Green Bay, and the Director of American Indian Educational Opportunity Program at the University of Colorado.

He also served as the Executive Director of American Indian Science and Engineering Society (AISES) for fifteen years in Boulder, Colorado before joining the American Indian Graduate Center staff in June 2000.

Mr. Hill has been awarded three fellowships: Institute for Educational Leadership in Washington, D.C.; Community Builder Fellow with HUD; and Rockefeller Foundation Fellow.

He serves on numerous boards, including the North Central Association of Colleges and Schools, and has authored publications on educational issues for Native Americans. He was the founder and publisher of Winds of Change magazine, a publication of AISES.

Dr. Diana Natalicio

Diana S. Natalicio attended the University of Texas at Austin, where she was awarded a Ph.D. degree in linguistics. She was appointed to the National Science Board in 1994, served as Vice Chair from 1996 to 2000, was reappointed to the Board in 2000 and elected Vice Chair in 2002.

She spent a year as a Fulbright scholar in Rio de Janeiro, Brazil and held a Gulbenkian fellowship in Lisbon, Portugal. In 1971 she joined the faculty of the University of Texas at El Paso and two years later was named chair of the Modern Languages Department. She became dean of liberal arts in 1977 and vice president for academic affairs in 1984. In 1988 she assumed her current position as president of University of Texas at El Paso.

Dr. Natalicio serves on numerous boards and commissions, including the Governor's Council on Science and Biotechnology Development, the Board of Governors of the U.S.-Mexico Foundation for Science, the University Corporation for Advanced Internet Development and the National Commission on Teaching and America's Future. She also serves on the board of the Sandia National Laboratories, Trinity Industries, and the National Action Council for Minorities in Engineering.

Dr. Natalicio received the Harold W. McGraw, Jr. Prize in Education in 1997, was inducted into the Texas Women's Hall of Fame in 1999 and holds two honorary doctorates.

Dr. Beverly Daniel Tatum

Dr. Beverly Daniel Tatum is the ninth president of Spelman College, the oldest historically Black college for women, where she is continuing the Spelman tradition of academic excellence and leadership development. Prior to her appointment to the Spelman presidency in 2002, she spent 13 years at Mount Holyoke College, serving in various roles during her tenure there- as professor of psychology, department chair, dean of the College and acting president.

A noted scholar, teacher and race relations expert, Dr. Tatum is a clinical psychologist whose areas of research interest include black families in white communities, racial identity in teens, and the role of race in the classroom. She is the author of the critically acclaimed book "*Why Are All The Black Kids Sitting Together in the Cafeteria?" And Other Conversations About Race,* released in its fifth anniversary edition in 2003. Since its original publication in 1997, the book has been listed on the Independent Bookstore Bestseller list and was selected as the multicultural book of the year in 1998 by the National Association of Multicultural Education. The *New York Times* recommended the book as required reading for private school teachers and administrators in the greater New York area who were dealing with issues of race and class. She is also the author of *Assimilation Blues: Black Families in a White Community* (1987). In addition, she has published numerous articles, including her classic 1992 Harvard Educational Review article, "Talking about Race, Learning about Racism: An Application of Racial Identity Development Theory in the Classroom." In 1997, Dr. Tatum participated in President Clinton's national conversation about race and in 2000 she appeared as a guest on *The Oprah Winfrey Show* as a part of a Martin Luther King, Jr. Day broadcast concerning American youth and race.

Dr. Tatum earned a B.A. in psychology from Wesleyan University in Middletown, Connecticut and a M.A. and Ph.D. in clinical psychology from the University of Michigan. She also holds a M.A. degree in Religious Studies from Hartford Seminary. Prior to joining the Mount Holyoke College faculty in 1989, Dr. Tatum was an associate professor and assistant professor of psychology at Westfield State College in Westfield, Massachusetts, and a lecturer in Black Studies at the University of California at Santa Barbara.

The recipient of numerous honorary degrees, Dr. Tatum is also a member of the Board of Directors of the Association of American Colleges and Universities, and a trustee of Wesleyan University, and the Williston Northampton School.

She is married to Dr. Travis Tatum, a professor of education at Westfield State College, and the mother of two sons, a 21 year old and a 17 year old.

Dr. Shirley Malcom

Shirley Malcom holds a Ph.D. in ecology from Pennsylvania State University. Dr. Malcom is head of the American Association for the Advancement of Science (AAAS) Directorate for Education and Human Resources Programs. The directorate develops initiatives to address AAAS goals to improve the quality of education in science, mathematics and related fields, pre K – postgraduate, to broaden the talent pool in these fields to include women, minorities and persons with disabilities and to enhance public science and technology literacy.

Dr. Malcom has also been a high school science teacher, university faculty member and National Science Foundation program officer. She serves on the boards of the Howard Heinz Endowment and Caltech and is a Regent of Morgan State University. Policy experiences include past membership on the National Science Board and President’s Committee of Advisors on Science and Technology. In 2003 Dr. Malcom was awarded the Public Welfare Medal by the National Academy of Sciences.

Dr. Richard Tapia

Richard Tapia received B.A., M.A. and Ph.D. degrees in mathematics from the University of California Los Angeles. He is currently a mathematician and professor in the Department of Computational and Applied Mathematics at Rice University in Houston, Texas.

Dr. Tapia is internationally known for his research in the computational and mathematical sciences and is a national leader in education and outreach programs. In addition to his professorship at Rice University, he is the Associate Director of Graduate Studies at the Office of Research and Graduate Studies and Director of the Center for Excellence and Equity in Education. He is also currently an adjunct faculty member of Baylor College of Medicine and the University of Houston.

Dr. Tapia has authored or co-authored two books and over 80 mathematical research papers. He has delivered numerous invited addresses at national and international mathematical conferences and serves on several national advisory boards. Due to Dr. Tapia's efforts, Rice has received national recognition for its educational outreach programs and the Rice Computational and Applied Mathematics Department has become a national leader in producing women and underrepresented minority Ph.D. recipients in the mathematical sciences. Currently 31 mathematics students have received the Ph.D. degree under his direct supervision.

Under Dr. Tapia's direction, Rice's NSF-funded Alliances for Graduate Education in the Professorate Program provides opportunities for undergraduate and graduate students in science, mathematics and engineering to participate in university activities and work for the summer under the guidance of researchers at Rice. He impacts hundreds of teachers through two summer programs, the Mathematical and Computational Sciences Awareness workshop and GirlTECH.

Among his many honors, in 1996, Tapia was appointed by President Clinton to the National Science Board. Also in 1996, he received the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring. He received the 1997 Lifetime Mentor Award from the American Association for the Advancement of Science. Tapia was named the 1996 Hispanic Engineer of the Year by Hispanic Engineer Magazine, the first academician to receive this honor. He was elected to the National Academy of Engineering, the first native born Hispanic to receive this honor, and was given the Hispanic Engineer National Achievement Award for Education, the George R. Brown Award for superior teaching, and named one of the 20 most influential leaders in minority math education by the National Research Council. He was selected Professor of the Year by the Association of Hispanic School Administrators of the Houston Independent School District

Dr. Esin Gulari

Esin Gulari earned her Ph.D. in chemical engineering from Caltech in Pasadena, California, in 1973, and joined the Wayne State University (WSU) College of Engineering faculty in 1979. In addition to her professorship, Dr. Gulari is the Division Director of the Chemical and Transport Systems Division in the Engineering Directorate at the National Science Foundation. She was chair of the WSU Chemical Engineering and Materials Science Department from 1993 to 2000 and Acting Assistant Director for the Engineering Directorate from September 2001 to April 2003.

Dr. Gulari is the recipient of many awards. In 1995, she was awarded the Henry Ford Technology Award for her work in controlling oil mist in machining operations, an important innovation for environmental conditions in automotive plants. Dr. Gulari also was presented the Wayne State Distinguished Graduate Faculty Award in 1996 and the Outstanding Graduate Mentor Award in 1999. She is a fellow of the American Institute of Chemical Engineers, 2003 chair for the Council of Chemical Research, a member of the NRC Chemical Sciences Roundtable, a member of the executive board of the Committee for the Advancement of Women Chemists and Chemical Engineers.

Dr. Evelyn Hu-Dehart

Evelyn Hu-Dehart holds a Ph.D. in Latin American History from the University of Texas at Austin. She is currently Professor of History and Director of the Center for the Study of Race and Ethnicity in America at Brown University. She joined Brown from the University of Colorado at Boulder where she was Chair of the Department of Ethnic Studies and Director of the Center for Studies of Ethnicity and Race in America.

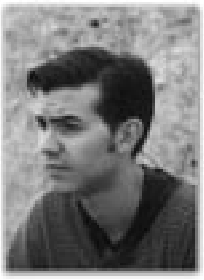
In 1988, Dr. Hu-Dehart left the City University of New York to become the CSERA Director at the University of Colorado at Boulder. She has also taught at the City University of New York system, New York University, Washington University in St. Louis, University of Arizona and University of Michigan, as well as lectured at universities and research institutes in Mexico, Peru, Cuba, France, Hong Kong, Taiwan, and China. She has written two books on the Yaqui Indians, and is now engaged in a large research project on the Asian diaspora in Latin America and the Caribbean.

Dr. Hu-Dehart speaks several languages, including English, Chinese, French, and Spanish, and her professional life has focused on what Cuban historian Juan Perez de la Riva calls "historia de la gente sin historia." The goal of Professor Hu-Dehart's diaspora project is to uncover and recover the history of Asian migration to Latin America and the Caribbean, and to document and analyze the contributions of these immigrants to the formation of Latin/Caribbean societies and cultures. It should also contribute towards theorizing diasporas and transnationalism. The importance and timeliness of this research was most recently demonstrated by the election of Alberto Fujimori, son of Japanese immigrants, as President of Peru. Dr. Hu-Dehart also hopes that her work would broaden the scope of Asian American Studies as well as contribute to an area not well covered within Latin American Studies. She has published numerous articles in English, Spanish, French, and Chinese on the topic, and expects to publish at least one book.

Dr. Lilian Shiao-Yen Wu

Lilian Shiao-Yen Wu graduated from Cornell University with a Ph.D. in Applied Mathematics. She received her B.S. from the University of Maryland at College Park. Dr. Wu is currently Director of University Relations at IBM's Corporate Headquarters in New York, and a member of the President's Council of Advisors on Science and Technology.

Dr. Wu chairs the National Research Council's Committee on Women in Science and Engineering and serves on the National Science Foundation's Committee on Equal Opportunity in Science and Engineering. She was a member of President Clinton's Council of Advisors on Science and Technology. Her major research interests are mathematical modeling and risk analysis in business, women in science and engineering, and energy and ecosystems. She also serves as Trustee of the New School, Director of the International Institute of Forecasters, and is on the Advisory Boards of the National Institute for Science Education, and the Douglas Project for Rutgers Women in Math, Science, and Engineering.



Dr. Emilio Bruna

Emilio M. Bruna received his Ph.D. in Population Biology from the University of California at Davis, then completed a National Science Foundation Minority Postdoctoral Fellowship at the Instituto Nacional de Pesquisas da Amazônia in Brazil. He is an Assistant Professor of Wildlife Ecology and Conservation at the University of Florida, with a joint appointment in the Center for Latin American Studies.

Dr. Bruna's research focuses on the consequences of deforestation and habitat fragmentation for plant-animal interactions and plant population dynamics. Much of this work has been conducted at Brazil's Biological Dynamics of Forest Fragments Project, where Dr. Bruna also helped develop and implement an internship program for Brazilian undergraduates interested in Amazonian ecology.

Dr. Bruna's research awards have included grants and fellowships from the National Science Foundation, The Ford Foundation, The Smithsonian Institution and the State University of New York International Development Group. Results of Dr. Bruna's research have been published in *Ecology*, *Nature,* and *Conservation Biology*.

Dr. Judith Ramaley

Judith Ramaley received her bachelor's degree from Swarthmore College in 1963 and conducted her graduate studies at the University of California, Los Angeles, where she earned a doctorate in 1966. She is currently the Assistant Director of the Education and Human Resources Directorate of the National Science Foundation (NSF). She served for two years as a post-doctorate fellow at Indiana University and was an American Council on Education fellow at the University of Nebraska Medical Center at Omaha, where she served as associate dean for research and development. She holds a presidential professorship in biomedical sciences at the University of Maine-Orono and is a Fellow of the Margaret Chase Smith Center for Public Policy.

Prior to joining the NSF, Dr. Ramaley became the chief academic officer at the State University of New York at Albany. She also served as executive vice president for academic affairs for two years and as acting president for one semester at SUNY-Albany. Dr. Ramaley was the executive vice chancellor at the University of Kansas from 1987 to 1990, President and professor of biology at the University of Vermont from July 1, 1997 to June 30, 2001 President and professor of biology at Portland State University in Portland, Oregon from 1990 to 1997.

Dr. Ramaley has a special interest in higher-education reform and has played a significant role in designing regional alliances to promote educational cooperation. She also has contributed to a national exploration of the changing nature of work and the workforce and of the role of higher education in the school-to-work agenda. She also plays a national role in the exploration of civic responsibility and the role of higher education in promoting good citizenship.

Under her leadership, The University of Vermont became a member of the Kellogg Commission on the Future of State and Land-Grant Universities that explored the role of research universities in the 21st century. The University has also established new partnerships in the state that support educational reform, economic and community development, and opportunities for Vermonters across the state. The most significant of these partnerships is the Vermont Public Education Partnership, an alliance of the Vermont Department of Education, the University of Vermont and the Vermont State Colleges to promote preK-20 collaboration throughout the state. In Vermont, Dr. Ramaley was a Director of the Vermont Business Roundtable, a member of the Human Resources Investment Council, a member of the Vermont Commission on Higher Education Funding, a member of the Governor's Council of Economic Advisors, a member of the Vermont Quality Council Board of Advisors and Co-Chair of the Vermont Campus Compact.

At the national level, Dr. Ramaley recently served as a member of the board of the Association of American Colleges and Universities and as a member of the National School-to-Work Advisory Board. She is a member of the presidential advisory panel for the Association of Governing Boards, Chair of the Board of Campus Compact, chair of the subcommittee on College Drinking of the Advisory Council of the National Institute on Alcohol Abuse and Alcoholism and is currently a trustee of Wilmington College in Wilmington, Ohio and a member of the Board of the American Association of Higher Education. She also is chair of the Greater Expectations Panel that developed a new approach to liberal education for the 21st Century.

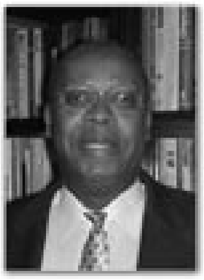
Dr. Clifton Poodry

Clifton Poodry earned both a B.A. and an M.A. in Biology at the State University of New York at Buffalo, and received a Ph.D. in Biology from Case Western Reserve University. He is the Director of the Minority Opportunities in Research Division at the National Institute of General Medical Sciences.

Prior to assuming this position in April of 1994, Dr. Poodry had been a Professor of Biology at the University of California, Santa Cruz where he also served in several administrative capacities. As a professor, Dr. Poodry was involved with minority student development through the NIH sponsored Minority Biomedical Research Support and Minority Access to Research Careers Programs. Over the years, he also served on the NIH review committees for both programs.

Dr. Poodry has received and directed grants from several agencies, including the National Institutes of Health, National Science Foundation, and the Office of Naval Research. He was the Principal Investigator on a grant for undergraduate biological sciences from the Howard Hughes Medical Institute. He was for many years a faculty participant and advisory board member for the Headlands Indian Health Careers Program of the University of Oklahoma. Among the many Boards he had served on are the Boards of Directors of the American Indian Science and Engineering Society, the Society for the Advancement of Chicanos and Native Americans in Science, and on the Advisory Committee on Minority Science Education of the American Association for the Advancement of Science. Dr. Poodry is also a founding member of Openmind, an association for the achievement of cultural diversity in higher education.

He was the 1995 recipient of the Ely S. Parker Award from the American Indian Science and Engineering Society for contributions in science and service to the American Indian community. In 1999 the State University of New York awarded him an honorary Doctor of Science for his contributions in science and to the inclusion of minorities in research careers.



Dr. Willie Pearson, Jr.

Willie Pearson, Jr. holds a Ph.D. from Southern Illinois University. He is currently Professor and Chair of the School of History, Technology and Society at the Georgia Institute of Technology.

Dr. Pearson specializes in the sociology of science and sociology of the family. He is the author and co-editor of six books and monographs and numerous articles and chapters. He is completing a book entitled, *Beyond Small Numbers: Voices of African American Ph.D. Chemists*.

He has held research grants from the National Science Foundation, National Endowment for the Humanities, the Sloan Foundation, and the Department of Justice. Dr. Pearson has held postdoctoral fellowships at the Educational Testing Service and the Office of Technology Assessment, U.S. congress. He serves as a lecturer in Sigma Xi's Distinguished Lectureship Program and Chair, is a member of the Committee on Science, Engineering and Public Policy, and a member of the American Association for the Advancement of Science.

Obtaining the Workshop Proceedings and Board Report

Broadening Participation in Science and Engineering Research and Education: Workshop Proceedings (NSB-04-72) is available electronically at:
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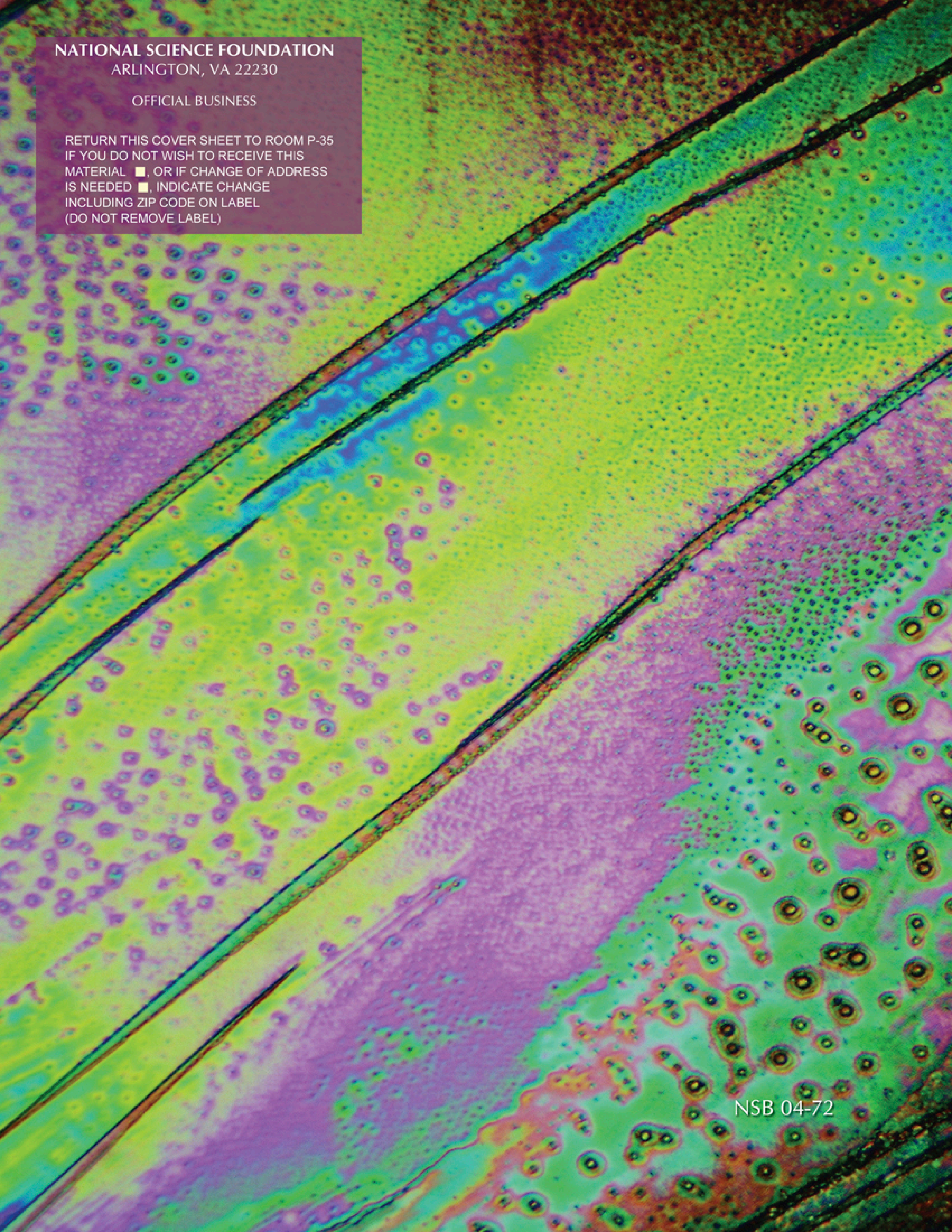

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RETURN THIS COVER SHEET TO ROOM P-35
IF YOU DO NOT WISH TO RECEIVE THIS
MATERIAL ☐, OR IF CHANGE OF ADDRESS
IS NEEDED ☐, INDICATE CHANGE
INCLUDING ZIP CODE ON LABEL
(DO NOT REMOVE LABEL)

NSB 04-72