

Science of Design (SoD)

Software-Intensive Systems

Program Solicitation

NSF 05-620

Replaces Document NSF 04-552



National Science Foundation

Directorate for Computer and Information Science and Engineering

Division of Computing & Communication Foundations

Division of Information and Intelligent Systems

Division of Computer & Network Systems

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

January 06, 2006

REVISIONS AND UPDATES

This is the second solicitation for Science of Design proposals. This year there are three categories of awards: Team Projects (TEAM), Community-Building Activities (CBA), and Highly Creative Exploratory Research (HCER). Please see the solicitation for specific instructions for preparation and submission of the three categories of proposals.

Note: Program staff will check all proposals to make sure that they are compliant with the NSF Grant Proposal Guide (GPG). The GPG states that "any submitted proposal that was previously reviewed and declined and has not been substantially revised" may be returned without review. Similarly, the GPG states that "Proposals that do not separately address both merit review criteria within the one page Project Summary will be returned without review." There are many other guidelines related to proposal preparation. Be sure to carefully follow the GPG to avoid having your proposal returned without review.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Science of Design (SoD)
Software-Intensive Systems

Synopsis of Program:

The Science of Design (SoD) Program at NSF is soliciting proposals for projects that will bring creative, scientific advances to design as it pertains to computer-based artifacts, especially software-intensive systems. Design is a topic of increasing interest in many fields, and computer scientists can play a leading role in, and be a major beneficiary of, the advancement of design research and education to meet the critical software design challenges of the 21st century. The focus of this program is on the design of software-intensive systems. However, importing and adapting ideas from other design fields (engineering, urban planning, architecture, economics and the arts, for example) is encouraged. Similarly, it is critical that software design researchers work across different areas within computer science to insure that design includes the interdependencies of software with other systems artifacts. The objective of the program is to bring new paradigms, concepts, approaches, models, and theories into the development of a strong intellectual foundation for software design, which will ultimately improve the processes of constructing and modifying software-intensive systems. This body of knowledge needs to be intellectually rigorous, formalized where appropriate, supported by empirical evidence where possible, and above all, teachable.

SoD solicits proposals in three categories:

- Team Projects (TEAM)
- Community Building Activities (CBA)

- Highly Creative Exploratory Research (HCER)

The focus of this competition is on the development of new research directions. Accordingly, continuations of current lines of research are unlikely to be competitive. Each proposal should articulate its vision of a Science of Design and how the proposed project fits into that context. Moreover, each proposal should provide a convincing argument that the proposed research is innovative and unique in its contribution to a Science of Design discipline, including careful reference to the literature.

Cognizant Program Officer(s):

- Sol Greenspan, Program Director, Directorate for Computer & Information Science & Engineering, Division of Computing and Communication Foundations, 1108 N, telephone: (703) 292-8910, fax: (703) 292-9059, email: sgreensp@nsf.gov
- Anita J. La Salle, Program Director, Directorate for Computer & Information Science & Engineering, Division of Computer and Network Systems, 1175 N, telephone: (703) 292-8950, fax: (703) 292-9010, email: alabelle@nsf.gov
- Ephraim P. Glinert, Program Director, Directorate for Computer & Information Science & Engineering, Division of Information and Intelligent Systems, 1125 S, telephone: (703) 292-8930, fax: (703) 292-9073, email: eglinert@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.070 --- Computer and Information Science and Engineering

Eligibility Information

- **Organization Limit:** None Specified.
- **PI Eligibility Limit:** None Specified.
- **Limit on Number of Proposals:** A person may be a participant (i.e., PI, co-PI, senior personnel) on at most one proposal in the Team Project (TEAM) category. A person may be a participant (i.e., PI, co-PI, senior personnel) on at most one proposal in the Highly Creative Exploratory Research (HCER) category. A person may not participate in both a TEAM proposal and a HCER proposal for this solicitation. Proposals that do not comply with these conditions may be returned without review. It is strongly advised that all project personnel check with their colleagues to make sure that all participants are in compliance with this condition. Submitters of a TEAM or HCER proposal may also submit a proposal to the Community-Building Activities (CBA) category.

Award Information

- **Anticipated Type of Award:** Standard or Continuing Grant
- **Estimated Number of Awards:** 20 to 30 - over the three award categories, including up to 10 awards for Team Projects, up to 10 awards for Community-Building Activities, and up to 10 awards for Highly Creative Exploratory Research awards and/or grant supplements..
- **Anticipated Funding Amount:** \$10,000,000 in FY 2006 subject to the availability of funds

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Full Proposal Preparation Instructions:** This solicitation contains information that supplements the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required by NSF.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Not Applicable.

C. Due Dates

- **Full Proposal Deadline Date(s)** (due by 5 p.m. submitter's local time):
January 06, 2006

Proposal Review Information

- **Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

- **Award Conditions:** Standard NSF award conditions apply.
- **Reporting Requirements:** Standard NSF reporting requirements apply.

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I. INTRODUCTION

In the mid-1960s, the failures of many software construction projects led to a consensus that a new field had to emerge to improve the theory and practice of software design. The NATO Science Committee's Study Group on Computer Science commissioned a workshop which emphasized the need for a new field called "Software Engineering"

"The phrase 'software engineering' was deliberately chosen as being provocative, in implying the need for software manufacture to be based on the types of theoretical foundations and practical disciplines that are traditional in the established branches of engineering." [1]

This message still resonates today. While many advances have been made in Software Engineering over the years, software-intensive systems have become increasingly ambitious and complex. The field still lacks the scientific and engineering discipline for the software-intensive systems being built today and being envisioned for twenty years or more into the future. The Science of Design (SoD) program is intended to inspire the research community to make creative leaps in thinking and to expand significantly the intellectual foundation for the design of software-intensive systems.

[1] Software Engineering: Report on a Conference sponsored by the NATO SCIENCE COMMITTEE, Garmisch, Germany, 7th to 11th October 1968, Editors: Peter Naur and Brian Randell, January 1969, <http://homepages.cs.ncl.ac.uk/brian.randell/NATO/>.

II. PROGRAM DESCRIPTION

The Science of Design Program seeks to initiate new activities to bring together the necessary knowledge and expertise to develop a Science of Design discipline. Design is of interest in many programs across the CISE Directorate; however, the SoD program provides an opportunity to focus on the subject of Design in its own right, independent of the particular types of systems and architectures in each domain of discourse provided by the individual programs. While design is sometimes viewed as a specific activity and work product in the creation of modern products and services, here the term "design" is meant

to apply more broadly to the principles underlying all aspects of system creation -- not just a particular stage of system development.

The SoD program recognizes that significant strides in creative thinking about design are already underway in many disciplines outside computer science, and the program seeks to import and adapt the best of these ideas to contribute to a conceptual or theoretical basis for the design of software-intensive systems. The program also expects that new ways of thinking about design will need to emerge to address the unique nature of software, which differs materially from other designed artifacts.

Research on software systems typically focuses on how to reduce errors, increase reliability under duress, make systems easier to learn and use, isolate failures and reduce their impact, adapt to new purposes, contexts, and operational environments, and so on. The Science of Design Program seeks ideas that will broaden the ways in which this research is conducted, particularly in light of increasing software sophistication, diversity, dependencies, and risks. The focus on design as the central theme of this program is intended to raise the level of discourse, generate new perspectives, and take a more holistic view of the major challenges in constructing software-intensive systems.

There are many challenges currently facing the field. Some of these include: what are the principles of software design that could lead to more robust and stable design structures, easier composition and a higher degree of adaptability? How can we gain a deeper understanding of how large systems or vast information infrastructures can be built successfully to achieve their purposes and be truly useful in diverse circumstances? What ideas from other design fields can transfer effectively to the design of software-intensive systems, and to what extent does the predominance of software and computation imply the need for radically new approaches? What new research paradigms are needed to make and measure progress for a Science of Design discipline and to define and understand its limits?

SoD will also support projects that develop innovative curricular materials and that have the potential to greatly improve higher education on Science of Design topics. Investigators who wish to make contributions in this area may propose to do so either as part of a broader research and education project or as a stand-alone educational project. Whatever the case, proposals must provide strong justification for the need for the new educational materials, and must include plans for evaluating their effectiveness and disseminating them to the community. As for other proposals, educational proposals must convincingly argue the uniqueness and innovativeness of the project and its outcomes, including reference to the existing state of affairs in education and how the proposed work will advance and impact it.

SoD is soliciting three categories of proposals:

1. **Team Projects (TEAM)**, which afford opportunities for collaborations between software-oriented and other design-oriented researchers to develop a strong intellectual foundation for software-intensive design. Projects might include: development of highly abstract formulations; importations of techniques and knowledge from other design fields; examination of highly successful and/or extreme cases of design projects, with results applicable to software-intensive systems; empirical studies of designs, designers, or design methodologies, and so on.
2. **Community Building Activities (CBA)**, which are aimed at developing a robust community of design researchers from a variety of disciplines and backgrounds focused on the problem of creating a Science of Design discipline, and encouraging those that will extend, teach, or utilize SoD in the future. These activities may include workshops, summer schools, student or faculty exchanges, and so on.
3. **Highly Creative Exploratory Research (HCER)**, which develop new paradigms or theoretical approaches to design of software and software-intensive systems. An HCER proposal may take the form of a Small Grant for Exploratory Research (SGER) proposal, a request for supplemental funding (to any NSF grant), or an unsolicited proposal. These types of proposals must be prepared and submitted according to the guidelines in the Grant Proposal Guide (GPG).

III. ELIGIBILITY INFORMATION

- **Organization Limit:** None Specified.
- **PI Eligibility Limit:** None Specified.

- **Limit on Number of Proposals:** A person may be a participant (i.e., PI, co-PI, senior personnel) on at most one proposal in the Team Project (TEAM) category. A person may be a participant (i.e., PI, co-PI, senior personnel) on at most one proposal in the Highly Creative Exploratory Research (HCER) category. A person may not participate in both a TEAM proposal and a HCER proposal for this solicitation. Proposals that do not comply with these conditions may be returned without review. It is strongly advised that all project personnel check with their colleagues to make sure that all participants are in compliance with this condition. Submitters of a TEAM or HCER proposal may also submit a proposal to the Community-Building Activities (CBA) category.

IV. AWARD INFORMATION

The anticipated funding amount is \$10,000,000 in Fiscal Year 2006, subject to the availability of funds. Approximately \$8,000,000 will be used to fund up to 10 Team Projects. Approximately \$1,000,000 will be used to fund up to 10 Community Building Activities, and approximately \$1,000,000 will be used to fund up to 10 awards and/or grant supplements in the Highly Creative Exploratory Research category.

Proposals in the Team category (TEAM) are expected to request amounts of about \$200,000 to \$250,000 per year for a duration up to 5 years.

Proposals in the category of Community-Building Activities (CBA) should have budgets whose size reflects the cost of the activity, which may vary considerably depending on the nature of the activity; thus, the prospective PI may need to contact a cognizant Science of Design program officer to discuss the appropriateness of a budget. The proposed activity for Community-Building Activities is expected to take place within one year of the award start date.

A proposal in the Highly Creative Exploratory Research category (HCER) may be a Small Grant for Exploratory Research (SGER) proposal, a supplemental funding request to an existing award (in any NSF program), or an unsolicited proposal. Proposals should be carefully budgeted as appropriate for the proposed activity. The guidelines for these types of proposals are in the GPG. A typical award size for the HCER category will be \$50,000 to \$200,000. PIs who are considering submission of a proposal in the HCER category should discuss their ideas with a cognizant Science of Design program officer prior to submission.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions:

Proposals submitted in response to this program announcement/solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF *Grant Proposal Guide* (GPG). The complete text of the GPG is available electronically on the NSF Website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

The following instructions supplement the GPG guidelines:

Proposal Titles

To assist NSF staff in sorting proposals for review, proposal titles should begin with an acronym that identifies the category of proposal being submitted. Use the following acronyms followed by a colon and a space followed by the rest of the title:

- Science of Design Team Projects: SoD-TEAM
- Science of Design Community Building Activities: SoD-CBA
- Science of Design Highly Creative Exploratory Research: SoD-HCER

For example, the title of a Science of Design Team Project proposal will have the form "SoD-TEAM:"

Management Plan

The Project Description for Team Projects must include (within the 15 page allowance) information about the role of key project personnel and the plan for coordinating project activities.

Proposers are reminded to identify the program announcement/solicitation number (05-620) in the program announcement/solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost Sharing:

Cost sharing is not required by NSF in proposals submitted under this Program Solicitation.

C. Due Dates

Proposals must be submitted by the following date(s):

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

January 06, 2006

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: <https://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program announcement/solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the [Grant Proposal Guide](#) for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Proposers are no longer required to provide a paper copy of the signed Proposal Cover Sheet to NSF. Further instructions regarding this process are available on the FastLane Website at: <http://www.fastlane.nsf.gov>

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The National Science Board approved revised criteria for evaluating proposals at its meeting on March 28, 1997 ([NSB 97-72](#)). All NSF proposals are evaluated through use of the two merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

On July 8, 2002, the NSF Director issued [Important Notice 127](#), Implementation of new Grant Proposal Guide Requirements Related to the Broader Impacts Criterion. This Important Notice reinforces the importance of addressing both criteria in the preparation and review of all proposals submitted to NSF. NSF continues to strengthen its internal processes to ensure that both of the merit review criteria are addressed when making funding decisions.

In an effort to increase compliance with these requirements, the January 2002 issuance of the GPG incorporated revised proposal preparation guidelines relating to the development of the Project Summary and Project Description. Chapter II of the GPG specifies that Principal Investigators (PIs) must address both merit review criteria in separate statements within the one-page Project Summary. This chapter also reiterates that broader impacts resulting from the proposed project must be addressed in the Project Description and described as an integral part of the narrative.

Effective October 1, 2002, NSF will return without review proposals that do not separately address both merit review criteria within the Project Summary. It is believed that these changes to NSF proposal preparation and processing guidelines will more clearly articulate the importance of broader impacts to NSF-funded projects.

The two National Science Board approved merit review criteria are listed below (see the [Grant Proposal Guide](#) Chapter III.A for further information). The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which he/she is qualified to make judgments.

What is the intellectual merit of the proposed activity?

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

NSF staff will give careful consideration to the following in making funding decisions:

Integration of Research and Education

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and

activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

Additional Review Criteria:

The Program is looking for new and creative ways of thinking about a Science of Design discipline. Incremental research will not be funded. Project Descriptions must present a vision for a Science of Design that forms the context for the contributions of the proposal.

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Ad Hoc and/or panel review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

NSF is striving to be able to tell proposers whether their proposals have been declined or recommended for funding within six months. The time interval begins on the closing date of an announcement/solicitation, or the date of proposal receipt, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See section VI.A. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (NSF-GC-1); * or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreement awards are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Website at <http://www.nsf.gov/awards/managing/>. Paper copies of these documents may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpm. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may

be ordered through the GPO Website at <http://www.gpo.gov>.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for the PI and all Co-PIs. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project reporting system, available through FastLane, for preparation and submission of annual and final project reports. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding this program should be made to:

- Sol Greenspan, Program Director, Directorate for Computer & Information Science & Engineering, Division of Computing and Communication Foundations, 1108 N, telephone: (703) 292-8910, fax: (703) 292-9059, email: sgreensp@nsf.gov
- Anita J. La Salle, Program Director, Directorate for Computer & Information Science & Engineering, Division of Computer and Network Systems, 1175 N, telephone: (703) 292-8950, fax: (703) 292-9010, email: alasalle@nsf.gov
- Ephraim P. Glinert, Program Director, Directorate for Computer & Information Science & Engineering, Division of Information and Intelligent Systems, 1125 S, telephone: (703) 292-8930, fax: (703) 292-9073, email: eglinert@nsf.gov

For questions related to the use of FastLane, contact:

- Velma Lawson, Program Specialist, Directorate for Computer & Information Science & Engineering, Division of Computing and Communication Foundations, 1115 N, telephone: (703) 292-8910, fax: (703) 292-9059, email: vlawson@nsf.gov

IX. OTHER PROGRAMS OF INTEREST

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at <http://www.nsf.gov/cgi-bin/getpub?gp>. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF *E-Bulletin*, which is updated daily on the NSF Website at <http://www.nsf.gov/home/ebulletin>, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's *MyNSF News Service* (<http://www.nsf.gov/mynsf/>) to be notified of new funding opportunities that become available.

Design is an explicit concern in many programs, both inside and outside of CISE. If a proposal is about a particular type of system or system architecture, or about design issues specific to one of the other programs, one should strongly consider submitting to those programs instead of to the Science of Design solicitation.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age,

sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF, although some programs may have special requirements that limit eligibility.

Facilitation Awards for Scientists and Engineers with Disabilities (FASSED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the GPG Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at <http://www.nsf.gov>

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230

- **For General Information** (NSF Information Center): (703) 292-5111

- **TDD (for the hearing-impaired):** (703) 292-5090

- **To Order Publications or Forms:**

Send an e-mail to: pubs@nsf.gov

or telephone: (703) 292-7827

- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid OMB control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230.

OMB control number: 3145-0058.

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