Scientific Computing Research Environments for the Mathematical Sciences (SCREMS)

Program Solicitation
NSF 04-513
Replaces Document NSF 03-504

National Science Foundation
Directorate for Mathematical and Physical Sciences
Division of Mathematical Sciences

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

January 26, 2004

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Scientific Computing Research Environments for the Mathematical Sciences (SCREMS)

Synopsis of Program:

The Division of Mathematical Sciences (DMS) of the National Science Foundation plans a limited number of grants for the support of computing environments for research in the mathematical sciences. SCREMS proposals are for computing environments dedicated to research in the mathematical sciences. Proposals may request support for the purchase of computing equipment and limited support for professional systems administrators or programmer personnel for research computing needs. These grants are intended to support research projects of high quality that require access to advanced computing resources. Requests for routine upgrades of standard desk-environment workstations or laptop computers are not appropriate for this program. Awards are made to provide support for specific research projects rather than to provide general computing capacity. Proposers are encouraged to include projects involving symbolic and algebraic computations, numerical computations and simulations, and graphical representations (visualization) in aid of the research. The SCREMS program is compatible with the Major Research Instrumentation (MRI) program except that the MRI program has limits on the number of proposals that an institution may submit in any year. If possible, within the context of the institutional limits, SCREMS proposals should be submitted as MRI proposals. Effective in FY 2004, and consistent with MRI, cost sharing is no longer required for SCREMS proposals from non-PhD granting institutions (see Section V.B).

Cognizant Program Officer(s):

- Ken Shaw, Program Director, Directorate for Mathematical & Physical Sciences, Division of Mathematical Sciences, 1025 N, telephone: (703) 292-4859, email: kshaw@nsf.gov

- Roger Berger, Program Director, Directorate for Mathematical & Physical Sciences, Division of Mathematical Sciences, 1025 N, telephone: (703) 292-4884, email: rberger@nsf.gov

- Xuming He, Program Director, Directorate for Mathematical & Physical Sciences, Division of Mathematical Sciences, 1025 N, telephone: (703) 292-4876, fax: (703) 292-9032, email: xhe@nsf.gov

- Thomas F. Russell, Program Director, Directorate for Mathematical & Physical Sciences, Division of Mathematical Sciences, 1025 N, telephone: (703) 292-4863, fax: (703) 292-9032, email: trussell@nsf.gov

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

- 47.049 --- Mathematical and Physical Sciences

Eligibility Information

- **Organization Limit:**

  Proposals may be submitted by U.S. educational institutions with ongoing research programs in mathematics, applied mathematics, or statistics. Proposals involving inter-institutional or inter-departmental sharing arrangements are welcome.

- **PI Eligibility Limit:**

  PIs and co-PIs may be faculty members or researchers from the submitting institution who are participating in the project and/or are administratively responsible for the acquisition planning, use, and maintenance of the equipment. For convenience, the Department Head may be designated as the PI, but this is not required.

- **Limit on Number of Proposals:** None Specified.

Award Information

- **Anticipated Type of Award:** Standard Grant
- **Estimated Number of Awards:** 8 to 12
- **Anticipated Funding Amount:** $1,000,000 in FY 2004 subject to availability of funds.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Full Proposal Preparation Instructions:** This solicitation contains information that deviates from 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 Specialized. Please see the full text of this solicitation for further information.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for

further information.

C. Due Dates

- **Full Proposal Deadline Date(s)** (due by 5 p.m. proposer's local time):
  January 26, 2004

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.

TABLE OF CONTENTS

I. INTRODUCTION

The Division of Mathematical Sciences of the National Science Foundation plans a limited number of grants for the support of computing environments for research in the mathematical sciences. This solicitation provides guidance for the preparation of eligible proposals.

Who may submit: Proposals may be submitted by U.S. educational institutions with ongoing research programs in mathematics, applied mathematics, or statistics. Proposals involving inter-institutional or inter-departmental sharing arrangements are welcome.

Purpose: SCREMS proposals are for computing environments dedicated to research in the mathematical sciences. Proposals may request support for purchase of computing equipment and limited support for professional systems administrators or programmer personnel for research computing needs. These grants are intended to support research projects of high quality that require access to advanced computational resources. Requests for routine upgrades of standard desk-environment workstations or laptop computers are not appropriate for this program. Awards are made to provide support for specific research projects rather than to provide general computing capacity. Proposers are encouraged to include projects involving symbolic and algebraic computations, numerical computations and simulations, and graphical representations (visualization) in aid of the research.

Proposers and institutions may find appropriate other NSF sources of support for instrumentation, including the Major Research Instrumentation (MRI) program. The current MRI program solicitation is NSF 04-511. The SCREMS program is compatible with the MRI program except that (1) the MRI program has limits on the number of proposals that an institution may submit in any year, and (2) the full proposal deadline for MRI proposals is January 22, 2004, which is earlier than the January 26, 2004 full proposal deadline for SCREMS proposals. If possible, within the context of institutional limits, SCREMS proposals should be submitted as MRI proposals, but they must be submitted by the MRI deadline of January 22, 2004. After that deadline date, proposals will only be accepted and reviewed as SCREMS proposals.

II. PROGRAM DESCRIPTION

Principal Investigator: PIs and co-PIs are faculty members or researchers from the sumbitting institution who are participating in the project and/or are administratively responsible for the acquisition planning, use, and maintenance of the equipment. For convenience, the Department Head may be designated, but this is not required.

Character of requests: This Program is intended to provide for needs that cannot be met by other research programs of NSF's Division of Mathematical Sciences. Requests are expected to be for support that is required jointly by several (two or more) research projects or difficult to justify for a single project. Amalgamations of small requests that could be submitted to NSF disciplinary research programs are discouraged.

SCREMS proposals may request funding for equipment only, certain personnel costs only (see Section V below), or both equipment and personnel costs. When appropriate and cost-effective, requests for group or departmental servers may be suitable for the SCREMS program.

It is especially important that the proposers make a strong case for the proposed computing environment as a coherent "computer system" and be able to describe thoroughly and in detail the impact of the proposed equipment on the proposed research activities. If this is intended to be the main computer system for a collection of research projects, describe the minimum computing requirements and explain, if appropriate, why a more-than-minimum system is proposed. If the proposed equipment includes a cluster of several nodes working in parallel, justify the rationale for the chosen computer and network architecture in relation to the research projects.

Budget Request Size: If equipment is requested, the net costs (after discounts) of the equipment portion should be at least $50,000. There is no minimum if support is requested only for professional systems administrators or programmer personnel for research computing needs. Requests may be as high as $200,000, provided a case is made for substantial impact and cost-effectiveness.

III. ELIGIBILITY INFORMATION

Proposals may be submitted by U.S. educational institutions with ongoing research programs in mathematics, applied mathematics, or statistics. Proposals involving inter-institutional or inter-departmental sharing arrangements are welcome. PIs and co-PIs may be faculty members or researchers from the submitting institution who are participating in the project and/or are administratively responsible for the acquisition planning, use, and maintenance of the equipment. For convenience, the Department Head may be designated as the PI, but this is not required.

IV. AWARD INFORMATION

The total number of awards is estimated between 8 and 12, and the total funding amount in FY 2004 is approximately $1,000,000. Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

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/cgi-bin/getpub?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 deviate from the GPG guidelines.

Proposal Format:

Proposals should incorporate each of the points detailed below and should conform to the page limitations and format requirements of the GPG. Proposals not adhering to the page limitations or to the margin, font or spacing requirement of the GPG, or not received by the deadline, will be returned without review

1. Completed Cover Sheet

    a. Program Solicitation: For consideration by Division of Mathematical Sciences; enter the program solicitation number of this solicitation on the Cover Sheet.

b.Title: Scientific Computing Research Environments for the Mathematical Sciences (SCREMS)

2. Project Summary - Proposal Section A

The proposal must contain a summary (1 page maximum) briefly describing the equipment requested and the research projects for which it is to be used. Suggested format:

The Department(s) of _____ at the University (Universities) of _____ will purchase _____ which will be dedicated to the support of research in the mathematical sciences. It will be used for several research projects, including: (etc).

The Project Summary must clearly address in separate statements (within the one-page summary) the two merit review criteria: the intellectual merit of the proposed activity, and the broader impacts resulting from the proposed activity.

3. Table of Contents - Proposal Section B

This section will be generated automatically by FastLane

4. Project Description - Proposal Section C

The page limitation of 15 total pages in the Project Description, as specified in the GPG, applies to SCREMS proposals. This section must consist of the following:

a. Brief description (not to exceed two pages) of minimum user requirements. Requirements for such items as cluster configuration, operating systems**,** networking capability, compatibility with existing hardware, software, speed, memory, and graphics capabilities should be included.

b. Abstracts of individual research projects. For each of the proposed research projects (usually between two and five) give the project title, name(s) of participating researchers, and a short summary of the research project (100 words).

c. Detailed explanation of each proposed research project and its relationship to the requested equipment. This portion of the proposal must not exceed 3 pages per project. For each project listed under Section V.A.4.b, above, give appropriate scientific justification and literature references, and explain how the research is dependent upon the requested equipment.

The scientific merit of the research made possible by the requested equipment and the impact of the proposed equipment on the research activity are the most important review criteria. Proposals will be judged by a panel of mathematical scientists chosen to provide a wide range of expertise

across the mathematical sciences. Some particular areas may not be represented by specialists. Therefore, all proposals must contain descriptions of the research projects in sufficient detail so that the scientific merit of each project can be evaluated by qualified reviewers who may or may not be specialists in the proposed research areas. Particular emphasis should be given to those unique or new scientific capabilities which will ensue from the proposed acquisition.

d. Detailed plan for maintenance and operation. Include names of individuals responsible for the equipment and the annual budget that the institution will allocate for these purposes. This plan should be for a three-year period. If personnel support is requested, please include relevant details, including qualifications and duties of individuals involved, and an explicit statement of the institution's agreement to assume personnel costs permanently, after a period not to exceed two years.

e. Available equipment. This section should include a complete description of equipment and related supporting personnel currently available to the Department(s). List the research computing facilities that are presently available to the participating researchers, and if appropriate describe the support staff dedicated to maintenance and operation of the equipment and system. Make explicit reference to the current location, condition, and use of any equipment purchased by your institution under prior SCREMS grants. List current and pending equipment requests to NSF and to other funding sources.

5. References Cited - Proposal Section D

Follow the format of the GPG.

6. Biographical Sketches - Proposal Section E

This section will consist of biographical sketches of the participating researchers listed under Section V.A.4.b above and other principal investigators if applicable. This may include, for the participating researchers, a list of up to five publications most closely related to the projects for which the proposed equipment will be used, and up to five other significant recent publications. This material should appear in the Biographical Sketches section and will not be counted in the page limitation requirement. The Biographical Sketches section is limited to no more than 2 pages per PI, co-PI, or participating researcher.

7. Budget and Cost Sharing - Proposal Section F

Show total costs and all sources of support. The budget should make reference to a representative manufacturer and model numbers, with itemized and total costs. If the request includes funding for equipment, the total discounted cost of equipment should be at least $50,000. There is no minimum if support is requested only for professional systems administrators or programmer personnel for research computing needs.

The proposal should describe the institution's provisions for space, installation, maintenance and operation of the requested equipment. NSF will not provide funds for these items.

Effective in FY 2004, cost sharing is no longer required for SCREMS proposals from non-PhD granting institutions.

8. Current and Pending Project Support - Proposal Section G

   This includes all anticipated requests for such, from whatever source (e.g., Federal, State or local government agencies, private foundations, industrial or other commercial organizations). Follow the format of the GPG.

Proposers are reminded to identify the program announcement/solicitation number (04-513) 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 neither required nor allowed for proposals from non-PhD granting institutions. A non-PhD granting institution is defined as a two- or four-year college or university that has produced fewer than 20 PhD or DSci degrees in all NSF-supported disciplines during the two previous two academic years.

Cost sharing is required for proposals from PhD granting institutions at a level of exactly 30% of the total eligible project costs.

Eligible Project Costs

Eligible project costs include costs of purchase and installation of computing equipment, and the direct costs of operation, maintenance, and other appropriate technical support (including related personnel and supply costs).

Project Costs Eligible for Cost Sharing

Cost sharing may include partial purchase of the equipment and installation.

Costs of supplies and personnel directly associated with operation and maintenance of the equipment may applied to the total required cost sharing amount, but are limited to 10% of the total equipment hardware cost (***Line D*** of the proposal budget).

Project Costs Not Eligible for Cost Sharing

Direct and indirect costs associated with research projects to be conducted using the requested instrumentation (including researchers' salary and students' stipends) are not eligible as cost sharing under the SCREMS program.

Manufacturers' discounts are encouraged for reducing total project cost, but are not eligible as institutional cost sharing.

Cost sharing must occur during the award period

The following section explains how to calculate the cost sharing requirement for the SCREMS proposal, how to enter your cost sharing amount and the requested amount in the proposal budget, and what costs may be included in your cost sharing.

Calculation of Cost Sharing for SCREMS Proposals

To calculate your cost sharing requirement for a SCREMS proposal:

1. Add all project costs eligible for cost sharing as described above.

2. Calculate 30% of the amount in (1) above. This is the required cost sharing amount.

3. Enter the cost sharing amount, as determined in (2) above, on ***Line M*** of the proposal budget.

4. All entries in the column titled "Funds Requested By Proposer" on the proposal budget should reflect only those costs that you are requesting from NSF. All entries in this column should add to 70% of total project cost. ***Line L*** should reflect the total amount that you are requesting from NSF.

The documentation referenced in the paragraph below refers to the budget justification section of your proposal. The budget justification, which must not exceed three pages, should itemize and explain all eligible project costs, assign each to either the NSF request or institutional cost sharing, and explain the basis for all cost estimates. Specify the sources and amounts of cost-sharing funds (e.g., state appropriations, department funds, private sources); the steps necessary to obtain cost-sharing funds; and a projection of when they will be available. As noted above, cost sharing must occur during the award period.

The proposed cost sharing must be shown on Line M on the proposal budget. Documentation of the availability of cost sharing must be included in the proposal. Only items which would be allowable under the applicable cost principles, if charged to the project, may be included as the awardee's contribution to cost sharing. Contributions may be made from any non-Federal source, including non-Federal grants or contracts, and may be cash or in-kind (see OMB Circular A-110, Section 23). It should be noted that contributions counted as cost-sharing toward projects of another Federal agency may not be counted towards meeting the specific cost-sharing requirements of the NSF award. All cost-sharing amounts are subject to audit. Failure to provide the level of cost-sharing reflected in the approved award budget may result in termination of the NSF award, disallowance of award costs and/or refund of award funds to NSF.

Other Budgetary Limitations:

Budget Request Size: If equipment is requested, the net costs (after discounts) of the equipment portion should be at least $50,000. There is no minimum if support is requested only for professional systems administrators or programmer personnel for research computing needs. Requests may be as high as $200,000, provided a case is made for substantial impact and cost-effectiveness.

See the full Program Solicitation for further information.

C. Due Dates

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

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

January 26, 2004

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: http://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 scientific merit of the research made possible by the requested equipment and the impact of the proposed equipment on the research activity are the most important selection criteria. Proposals will be judged by a panel of mathematical scientists chosen to provide a wide range of expertise across the mathematical sciences. Some particular areas may not be represented by specialists. Therefore, all proposals must contain descriptions of the research projects in sufficient detail so that the scientific merit of each project can be evaluated by qualified reviewers who may or may not be specialists in the proposed research areas. Particular emphasis should be given to those unique or new scientific capabilities which will ensue from the proposed acquisition.

In addition, proposals will be evaluated on the following criteria:

- Scientific merit of the research made possible by the requested equipment

- Impact of the proposed equipment on the research activity
- Justification of need for proposed equipment
- Choice and appropriateness of equipment
- Appropriateness of personnel support
- Plan for maintenance and operation
- Impact of the proposed equipment and environment on the department and institution

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 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 applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the date of receipt. 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 also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). 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/home/grants/grants_gac.htm. Paper copies 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/cgi-bin/getpub?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:

- Ken Shaw, Program Director, Directorate for Mathematical & Physical Sciences, Division of Mathematical Sciences, 1025 N, telephone: (703) 292-4859, email: kshaw@nsf.gov
- Roger Berger, Program Director, Directorate for Mathematical & Physical Sciences, Division of Mathematical Sciences, 1025 N, telephone: (703) 292-4884, email: rberger@nsf.gov
- Xuming He, Program Director, Directorate for Mathematical & Physical Sciences, Division of Mathematical Sciences, 1025 N, telephone: (703) 292-4876, fax: (703) 292-9032, email: xhe@nsf.gov
- Thomas F. Russell, Program Director, Directorate for Mathematical & Physical Sciences, Division of Mathematical

Sciences, 1025 N, telephone: (703) 292-4863, fax: (703) 292-9032, email: trussell@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188, email: fastlane@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 Custom News Service (http://www.nsf.gov/home/cns/start.htm) to be notified of new funding opportunities that become available.

Related Programs:

- Major Research Instrumentation Program (NSF 04-511)

Proposers and institutions may find appropriate other NSF sources of support for instrumentation, including the Major Research Instrumentation (MRI) program.

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 (FASED) 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 or (800) 281-8749
- **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

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