

Major Research Instrumentation Program (MRI)

Program Solicitation

NSF 05-515

Replaces Document NSF 04-511



National Science Foundation

Office of the Director

Office of Integrative Activities

Directorate for Biological Sciences

Directorate for Computer and Information Science and Engineering

Directorate for Education and Human Resources

Directorate for Engineering

Directorate for Geosciences

Directorate for Mathematical and Physical Sciences

Directorate for Social, Behavioral, and Economic Sciences

Office of Polar Programs

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

January 27, 2005

Fourth Thursday of January annually thereafter.

January 26, 2006

Fourth Thursday of January annually thereafter.

REVISIONS AND UPDATES

The following items have been revised and updated for this solicitation:

For January 26, 2006 deadline: Deadline date, anticipated funding amount in FY2006, and clarification regarding instrumentation used at FFRDCs.

The deadline date has been updated to reflect the January 26, 2006 deadline.

The anticipated funding amount in FY2006 is \$90 million, pending availability of funds.

In Section III. ELIGIBILITY INFORMATION, Paragraph A. "Organization Limit," the following sentence is being added to item (4): "This is the only way instrumentation can be used at an FFRDC."

For January 27, 2005 deadline: Eligible project costs, cost sharing, and management plan.

Eligible project costs for instrument acquisition proposals include instrument purchase, installation, commissioning, and calibration. Eligible costs for instrument development proposals include parts and materials needed for the construction of the instrument, commissioning costs, as well as the direct and indirect costs associated with support of personnel engaged strictly in the instrument development effort. The costs of instrument maintenance and operations are not eligible in either category of proposals.

Cost sharing is no longer required for this solicitation.

Both instrument acquisition and instrument development proposals require detailed management plans as described in Proposal Preparation Instructions. Reviewers will use the management plans to evaluate the proposed project (see Section VI. A. "Additional Review Criteria").

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Major Research Instrumentation Program (MRI)
Instrument Development and Acquisition

Synopsis of Program:

The Major Research Instrumentation Program (MRI) is designed to increase access to scientific and engineering equipment for research and research training in our Nation's organizations of higher education, research museums and non-profit research organizations. This program seeks to improve the quality and expand the scope of research and research training in science and engineering, and to foster the integration of research and education by providing instrumentation for research-intensive learning environments. The MRI program encourages the development and acquisition of research instrumentation for shared inter- and/or intra-organizational use and in concert with private sector partners.

The MRI program assists in the acquisition or development of major research instrumentation by organizations that is, in general, too costly for support through other NSF programs. Proposals may be for a single instrument, a large system of instruments, or multiple instruments that share a common or specific research focus.

Cognizant Program Officer(s):

- Dragana Brzakovic, Senior Staff Associate, Office of the Director, Office of Integrative Activities, 1270 N, telephone: (703) 292-8040, fax: (703) 292-9040, email: dbrzakov@nsf.gov

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

- 47.075 --- Social, Behavioral and Economic Sciences
- 47.078 --- Office of Polar Programs
- 47.049 --- Mathematical and Physical Sciences
- 47.079 --- International Science and Engineering (OISE)
- 47.050 --- Geosciences
- 47.041 --- Engineering
- 47.076 --- Education and Human Resources
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences

Eligibility Information

• Organization Limit:

Please see Section III. ELIGIBILITY INFORMATION for detailed information.

- **PI Eligibility Limit:** None Specified.
- **Limit on Number of Proposals:** Please see Section III. ELIGIBILITY INFORMATION for detailed information.

Award Information

- **Anticipated Type of Award:** Standard Grant
- **Estimated Number of Awards:** 220

- **Anticipated Funding Amount:** \$90,000,000 (Proposals submitted in response to this program solicitation will be competing for about \$90 million, pending availability of funds, in Fiscal Year 2005 and \$90 million in Fiscal Year 2006.)

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:** 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. submitter's local time):
 - January 27, 2005
Fourth Thursday of January annually thereafter.
 - January 26, 2006
Fourth Thursday of January annually thereafter.

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

The Major Research Instrumentation (MRI) Program is designed to increase access to scientific and engineering equipment for research and research training in our Nation's organizations of higher education, research museums and nonprofit research organizations. This program seeks to improve the quality and expand the scope of research and research training in science and engineering, and to foster the integration of research and education by providing instrumentation for research-intensive learning environments. The MRI program encourages the development and acquisition of research instrumentation for shared inter- and/or intra-organizational use and in concert with private sector partners.

II. PROGRAM DESCRIPTION

MRI Program Goals

The goals of the MRI program are to:

- Support the acquisition, through purchase, upgrade, or development, of major state-of-the-art instrumentation for research, research training, and integrated research/education activities at organizations;
- Improve access to and increase use of modern research and research training instrumentation by scientists, engineers, and graduate and undergraduate students;
- Enable academic departments or cross-departmental units to create well-equipped learning environments that integrate research with education;
- Foster the development of the next generation of instrumentation for research and research training;
- Promote partnerships between academic researchers and private sector instrument developers.

MRI Program Scope

The MRI program assists in the acquisition or development of major research instrumentation by organizations that is, in general, too costly for support through other NSF programs.

Instrument Acquisition

Proposals may be for a single instrument, a large system of instruments, or multiple instruments that share a common or specific research focus. Computer systems, clusters of advanced workstations, networks, and other information infrastructure components necessary for research are encouraged.

Proposals for computer networks as general-purpose equipment will be returned without review. A list of assorted instruments or general lab equipment that do not share a common or specific research or research training focus will be returned without review. Instrumentation requested exclusively for standard science and engineering courses will also be returned without review.

This program will not support renovation or modernization of research facilities, fixed equipment, or facilities such as research vessels, airplanes, large telescopes, and supercomputing centers. The term "research facilities" refers to the bricks-and-mortar physical plant in which sponsored or unsponsored research activities (including research training) take place, including related

infrastructure, systems (e.g., HVAC and power systems, toxic waste removal systems), and fixed equipment. The term "fixed equipment" refers to the permanent components of a research facility that are integral (i.e., built in, rather than affixed) to the facility (e.g., clean rooms, fume hoods, elevators, laboratory casework); their removal would affect the integrity or basic operation of the facility.

Note: The MRI program will not review a duplicate proposal submitted to another NSF instrumentation program.

Instrument Development

NSF is stimulating the development of the next generation of research instrumentation by encouraging organizations to submit proposals that target instrument development. Individual investigators and teams of researchers are encouraged to apply for instrument development support.

The academic research enterprise relies on and produces new generations of sophisticated research instrumentation and software simulations thereof. The right design, development, and manufacturing processes can yield new instruments that are more widely used, open up new areas of research and research training, and have potential as commercial products. This solicitation seeks to expand the research community's capabilities by supporting the development of new instruments or upgrades with enhanced performance. "Performance" includes accuracy; reliability; resolving power; throughput speed; sample capacity; flexibility of operation; breadth of application; user-friendliness; and cost of acquisition, operation, and maintenance.

NSF particularly encourages collaborations between disciplinary scientists who are knowledgeable in unique instrumentation areas and private sector experts in the area of instrument manufacture. Working together within a framework of concurrent engineering, such partnerships have the potential to create new products with wide scientific and commercial impact.

NSF does not consider the acquisition of individual pieces of equipment to be combined in a new system to be instrument development.

Eligible Fields of Science and Engineering

Proposals will be considered for instrumentation used for any NSF-supported field of science, mathematics, and engineering. The research activities using this instrumentation need not be supported by NSF or the Federal government. The program will not provide support for instrumentation to be used in medical research and education paradigms or in the conduct of disease-oriented research, including the etiology, diagnosis or treatment of physical or mental disease, abnormality or malfunction in human beings or animals, or the design and testing of drugs for treatment of such conditions.

III. ELIGIBILITY INFORMATION

A. Organizational Limit:

Proposals may be submitted by the following organizations, except as noted in each item:

1. US colleges, universities and organizations of higher education located in the US, its territories and possessions.
2. US independent research museums located in the US, its territories and possessions.
3. US independent nonprofit research organizations [including consortia whose members consist only of organizations described in items (1) and (2)] located in the US, its territories and possessions.
4. Consortia that meet the definition in (3) above may also submit proposals through US colleges, universities, and organizations of higher education located in the US, its territories and possessions, for instrumentation to be used at a Federally Funded Research and Development Center (FFRDC). **This is the only way instrumentation can be used at an FFRDC.**
5. US small businesses located in the US, its territories and possessions are eligible for instrument development support as private sector partners with submitting organizations; they may not submit proposals as a lead organization.

Organizations that are eligible to submit proposals to NSF's MRI Program are divided into three categories: Ph.D. granting organizations, non-Ph.D. granting organizations, and non-degree granting organizations.

Ph.D. granting organizations are academic organizations that have produced more than 20 Ph.D.s or D.Sci's in all NSF-supported fields of science, mathematics or engineering during the previous two academic years (please review NSF's Guide to Programs for NSF supported fields of science, mathematics and engineering: <http://www.nsf.gov/od/lpa/news/publicat/nsf04009/start.htm>).

Non-Ph.D. granting organizations are two- and four- year colleges and universities that have produced fewer than 20 Ph.D.s or D.Sci.'s in all NSF-supported fields of science, mathematics, and engineering during the previous two academic years.

Non-degree granting organizations are independent nonprofit research organizations, research museums and consortia of eligible organizations.

B. **PI Eligibility Limit:** None specified.

C. **Limit on Number of Proposals:** Three (3) as described below. Both of the following conditions must be met or proposal(s) may be returned without review:

1. An organization may submit or be included as a partner or subawardee in no more than three proposals.
2. If an organization submits or is included as a partner or subawardee in three proposals, at least one of the three proposals must be for instrument development.
3. The signature of the Authorized Organizational Representative (AOR) on the Cover Sheet of a proposal signifies that the proposer and all partner organizations understand and agree to the following statement: "The AOR of each organization involved in this proposal is aware of this submission."

IV. AWARD INFORMATION

Proposals submitted in response to this program solicitation will be competing for about \$90 million, pending availability of funds, in Fiscal Year 2005 and \$90 million in Fiscal Year 2006.

Awards for instrumentation will range from \$100,000 to \$2 million. Proposals requesting less than \$100,000 will be considered only from non-Ph.D. granting organizations and from the disciplines of mathematical science or social, behavioral, and economic science at any eligible organization.

Proposers may request an award period up to three years for acquisition proposals and up to five years for development proposals.

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.

In addition to the GPG, MRI proposals must be prepared in accordance with all applicable FastLane guidelines and with the following instructions: (Note: Where these instructions and those in the Grant Proposal Guide do not agree, these instructions take

precedence.)

1. **Cover Sheet.** On the cover sheet, where asked to identify a program announcement/solicitation number, select the number that appears at the top of this program solicitation. Where asked to identify the NSF Unit Consideration, select the appropriate Division to consider your proposal. "Major Research Instrumentation" will be automatically selected as the program for your proposal.

The project title should convey the primary purpose of the proposal, e.g., "Acquisition of ____" or "Development of ____," and should specify if the proposal is being submitted by a consortium.

The signature of the Authorized Organizational Representative (AOR) on the Cover Sheet of a proposal signifies that the proposer and all partner organizations understand and agree to the following statement: "The AOR of each organization involved in this proposal is aware of this submission."

2. **Project Summary** (Maximum length, 1 page). Describe the proposed major research instrumentation, the type of research/research training conducted, and the activities that would result if NSF funds the project.
3. **Project Description** (Maximum length, 15 pages, including all figures and charts). The project description must include items (a)-(d).

- a. *Research Activities* (Suggested length, 9 pages for instrument acquisition; 4 pages for instrument development). Describe the research and research training activities and projects to be conducted with the desired instrumentation, and sources of support, if any. In narrative or tabular form, list by number and type (e.g., senior personnel, postdoctoral fellows, graduate students, undergraduate students) the personnel who will use the instrumentation for research and research training on a regular basis. This section may include Results from Prior NSF Support, if any of the PIs have received NSF support for instrumentation.
- b. *Description of the Research Instrumentation and Needs* (Suggested length, 2 pages for instrument acquisition; 6 pages for instrument development). Provide a technical description of the requested instrumentation, including manufacturer and model number. Proposers are strongly encouraged to submit manufacturers' quotes for instrument acquisition proposals. Written quotes from manufacturers should be scanned into the Supplementary Documents section of your FastLane proposal. The description should be comprehensive enough to allow reviewers to evaluate the extent to which the equipment is essential and appropriate. A listing and/or description of related instrumentation currently available at or near the submitting organization should be provided, and the request should be justified in this context. For development of new instrumentation, present the design concept, rationale, and development methods in sufficient detail to allow evaluation of its technical feasibility. Provide preliminary results from existing equipment, or appropriate calculations or models to show the performance (e.g., sensitivity, capacity, stability, resolution or signal-to-noise ratio) to be achieved by the new instrument. Justify the necessity and adequacy of the new instrumentation for the proposed research projects, with reference to existing instruments.
- c. *Impact of Infrastructure Projects* (Suggested length, 2 pages). Describe how the instrumentation will contribute to meeting the research and educational goals of the organization or consortium. Indicate how the instrumentation will attract researchers and students, particularly underrepresented groups and women pursuing advanced degrees in science and engineering, and improve the quality of their research training. (For example, the proposal could demonstrate that faculty at women's colleges and minority-serving organizations will have access to the instrumentation.) For instrument development proposals, discuss the potential impact of this activity on the Nation's academic research infrastructure. Describe how students will be involved and how their education will be enhanced through development efforts. If the development effort involves a private sector partner, submit a letter of agreement describing their role. This letter should be scanned into the Supplementary Documents section of your FastLane proposal.
- d. *Management Plan* (Suggested length, 2 pages for instrument acquisition; 3 pages for instrument development)

For instrument acquisition this plan should detail maintenance and operation projections. Specify how and by whom the requested instrumentation will be operated over the period of three years. Also, describe the technical expertise needed to maintain and operate the instrument with anticipated costs. Describe the facility in which the instrument will be housed. If the instrument will become part of a laboratory that houses similar equipment include information on usage and downtime. Describe procedures for allocating the new instrument time, if appropriate, and describe plans for attracting new users. Specify the organizational commitments regarding housing and costs associated with instrument maintenance and operations. Sufficient detail should be given to allow for reviewers to evaluate whether the plan includes appropriate technical expertise and infrastructure to allow effective usage of the instrument as well as facilitate multi-user accessibility.

For instrument development this plan should detail the design and construction phases of the project. Also, include plans for making instrument design readily available to other researchers, e. g., for transferring the technology to other U.S. academic, industrial or government laboratories or for commercializing the instrument. Describe the schedule of the project activities, broken into tasks, and estimate cost of each activity. Describe the technical expertise needed to execute each activity. Include the description of parts and materials needed for the construction phase and the associated costs. Specify timelines and deliverables for each activity. List risks associated with each activity and methods for reanalyzing and modifying the project plan if necessary. Describe the organization of the project staff and methods of assessing performance. For each member of the team include a description of the responsibilities and explain why a given position is necessary for the completion of the design and construction of the new instrument. Sufficient detail should be given to allow reviewers to analyze the cost of the new technology.

4. **References Cited.** Please refer to the GPG guidelines.
5. **Biographical Sketches.** Your proposal must include two-page biographical sketches of the PI, Co-PI(s), and senior personnel who are major users of the relevant research instrumentation, in accordance with GPG guidelines. Also, provide a brief biosketch of the individual responsible for the instrumentation.
6. **Budget and Funding.** The budget justification, which must not exceed three pages, should itemize and explain all eligible project costs and explain the basis for all cost estimates.
7. **Current and Pending Support.** Provide a form for the PI, Co-PI(s), and each major user of the instrumentation for whom a biographical sketch is submitted. If an individual has no current or pending support (other than this proposal), completion of the form is not required.
8. **Facilities, Equipment, and Other Resources.** This section is not required for Major Research Instrumentation proposals.
9. **Supplementary Documents.** Provide a statement classifying the submitting organization as a non-Ph. D. granting organization, Ph. D. granting organization, or non-degree granting organization (as defined in Section III). If the proposal involves organizations other than the submitting organization, list all partners and subawardees.
10. **List of Suggested Reviewers (optional).** Proposers may include a list of suggested reviewers whom they believe are especially well qualified to review the proposal. Proposers may also list persons they would prefer not review the proposal, indicating why.

NOTE: Proposals containing items other than those required above and by the GPG will be returned without review.

Proposers are reminded to identify the program announcement/solicitation number (05-515) 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.

Other Budgetary Limitations:

For instrument acquisition proposals, eligible costs include costs of instrument purchase, installation, commissioning, and calibration. The amount of the NSF request should be based on the net price of the instrumentation, including all academic discounts and other special purchase arrangements.

For instrument development proposals, eligible costs include parts and materials needed for the construction of the instrument, commissioning costs, as well as the direct and indirect costs associated with support of personnel engaged strictly in the instrument development effort. Requests for personnel support must include a description of the responsibilities of the project co-workers and explain why a given position is necessary for the completion of the design and construction of the new instrument. Sufficient detail should be given to allow reviewers to analyze the cost of the new technology.

For either acquisition or development proposals the following costs are *not eligible*: (i) instrument maintenance and operation, and (ii) direct and indirect costs associated with research projects to be conducted using the requested instrumentation (including researchers' salary and students' stipends).

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 27, 2005
Fourth Thursday of January annually thereafter.

January 26, 2006
Fourth Thursday of January annually thereafter.

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:

In addition to the evaluation criteria stated above, the following will be considered:

- Plans for using the new or enhanced research capability in teaching, training or learning.
- **For instrument acquisition proposals:** Management Plan. Specifically, reviewers will evaluate whether the plan: 1) includes sufficient infrastructure and technical expertise to allow effective usage of the instrument; and 2) provides organizational commitments for operations and maintenance.
- **For instrument development proposals:** Management Plan. Specifically, reviewers will evaluate whether the plan has a realistic schedule and mechanisms to deal with potential risks. In addition, the reviewers will evaluate the availability of appropriate technical expertise to design and construct the instrument and the cost of the new technology.
- **For instrument development proposals:** Rationale for development of a new instrument. Specifically, reviewers will consider if the proposed instrument will enable new types of measurement or information gathering.

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:

- Dragana Brzakovic, Senior Staff Associate, Office of the Director, Office of Integrative Activities, 1270 N, telephone: (703) 292-8040, fax: (703) 292-9040, email: dbrzakov@nsf.gov

Additional contact information for NSF's Major Research Instrumentation Program is as follows:

Office of Integrative Activities
Major Research Instrumentation Program
National Science Foundation, Room 1270
4201 Wilson Boulevard
Arlington, VA 22230
(703) 292-8040

E-Mail: mri@nsf.gov

The Office of Polar Programs strongly encourages MRI proposals related to all aspects of polar research supported by the Foundation. For any proposals requiring access to the polar regions or polar logistical support, investigators must contact appropriate OPP program managers for guidance about submitting information needed to assess logistical support requirements. This should be done during proposal development. For proposals requiring access to the arctic, contact Simon Stephenson (703-292-7435 or sstephen@nsf.gov). For proposals requiring access to the Antarctic, contact one of the following managers: for projects related to Antarctic marine research, contact Alexander Sutherland (703-292-8032 or alsuther@nsf.gov); for all other Antarctic projects, contact Brian Stone (703-292-8032 or bstone@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 *MyNSF News Service* (<http://www.nsf.gov/mynsf>) to be notified of new funding opportunities that become available.

RELATED NSF PROGRAMS FOR RESEARCH INSTRUMENTATION

Program Title	Brochure	Telephone

Advanced Technologies and Instrumentation Program (Division of Astronomical Sciences)	No publication #	703-292-8820
Chemistry Research Instrumentation and Facilities: Departmental Multi-User Instrumentation (CRIF:MU)	NSF 03-563	703-292-4953
Chemistry Research Instrumentation and Facilities: Instrumentation Development (CRIF-ID)	NSF 04-534	703-292-4953
CISE Computing Research Infrastructure	NSF 04-588	703-292-8950
Earth Sciences: Instrumentation and Facilities (EAR/IF)	NSF 04-507	703-292-8558
Information Technology Research (ITR)	NSF 04-012	703-292-8930
Instrument Development for Biological Research	NSF 98-119	703-292-8470
Instrumentation for Materials Research (IMR)	NSF 04-503	703-292-4935
Instrumentation for Materials Research - Major Instrumentation Projects (IMR-MIP)	NSF 03-604	703-292-4920
Multi-user Biological Equipment and Instrumentation Resources	NSF 98-137	703-292-8470
Division of Ocean Sciences: Integrative Programs Section (IPS). Includes Ship Operations, Oceanographic Technical Service, Oceanographic Instrumentation, Shipboard Scientific Support Equipment, Ship Acquisition and Upgrade etc.	NSF 04-052	703-292-8583
Oceanographic Technology and Interdisciplinary Coordination Program (OTIC)	No publication #	703-292-8582
Scientific Computing Research Environment for the Mathematical Sciences (SCREMS)	NSF 04-513	703-292-4859
Small Business Innovation Research and Small Business Technology Transfer Programs Phase I (SBIR/STTR)	NSF 04-604	703-292-7051

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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

- **To Order Publications or Forms:**

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

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


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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

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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.

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