

# Instrumentation for Materials Research (IMR)

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## Program Solicitation

NSF 05-522

*Replaces Document NSF 04-503*



**National Science Foundation**

Directorate for Mathematical and Physical Sciences

Division of Materials Research

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

February 16, 2005

January 11, 2007

Second Thursday in January annually thereafter

## REVISIONS AND UPDATES

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**NSF will not be accepting IMR proposals for the previously announced deadline of January 12, 2006. Any proposals submitted to IMR in FY 2006 will be returned without review.**

Previous Revisions and Updates:

The MRI program solicitation has been revised as follows: (1) Cost sharing is not required for proposals submitted under this revised program solicitation. (2) Program Director contact information has been updated. (3) The "Award Information" sections have been updated."

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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**Program Title:**

Instrumentation for Materials Research (IMR)

Division of Materials Research

**Synopsis of Program:**

The IMR Program supports the acquisition and/or development of research instruments that will provide new capability and/or advance current capability to: (1) discover fundamental phenomena in materials; (2) synthesize, process, and/or characterize the composition, structure, properties, and performance of materials; and (3) improve the quality, expand the scope, and foster and enable the integration of research and education in research-intensive environments.

**Cognizant Program Officer(s):**

- Charles Bouldin, Program Director (IMR), Directorate for Mathematical & Physical Sciences, Division of Materials Research, 1065 N, telephone: (703) 292-4920, email: [cbouldin@nsf.gov](mailto:cbouldin@nsf.gov)

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

- 47.049 --- Mathematical and Physical Sciences

#### Eligibility Information

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- **Organization Limit:** The IMR program accepts proposals from US academic institutions of higher education, independent non-profit research organizations, research museums, and legally incorporated consortia thereof.
- **PI Eligibility Limit:** Only one proposal may be submitted by a principal investigator, and he/she may collaborate in only one other proposal as a co-investigator.
- **Limit on Number of Proposals:** None Specified.

#### Award Information

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- **Anticipated Type of Award:** Standard or Continuing Grant
- **Estimated Number of Awards:** 35 to 40 - Approximately 35 to 40 new awards are made each year, depending on the quality of the competing proposals and available funds
- **Anticipated Funding Amount:** \$6,700,000 in FY2005. Subject to change annually depending on the availability of funds.

#### Proposal Preparation and Submission Instructions

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##### 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):  
February 16, 2005  
January 11, 2007  
Second Thursday in January annually thereafter

#### Proposal Review Information

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- **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

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

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## I. INTRODUCTION

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Observation and discovery of new phenomena are at the heart of our scientific enterprise. The Instrumentation for Materials Research (IMR) program in the Division of Materials Research (DMR) is designed to provide advanced capability for discovery, observation, characterization, fabrication and testing to the nation's scientists and engineers who are endeavoring to conduct research and educational activities in all areas normally supported by DMR. The Division supports a wide range of programs addressing fundamental phenomena in materials, materials synthesis and processing, structure and composition, properties and performance, and materials education. DMR plays a significant role in various NSF-wide interdisciplinary initiatives and programs.

## II. PROGRAM DESCRIPTION

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The goals of the IMR Program are to support the acquisition or development of research instruments that will provide new capability and/or advance current capability to: (1) discover fundamental phenomena in materials; (2) synthesize, process, and/or characterize the composition, structure, properties, and performance of materials; and (3) improve the quality, expand the scope, and foster and enable the integration of research and education in research-intensive environments.

## III. ELIGIBILITY INFORMATION

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The IMR program accepts proposals from US academic institutions of higher education, independent nonprofit research organizations, research museums, and legally incorporated consortia thereof. Proposals may be submitted in support of individual investigators or small groups who are endeavoring to conduct research and educational activities in all areas within the purview of DMR. Synergistic collaboration among researchers and collaboration or partnerships with industry or government laboratories is encouraged when appropriate.

Only one proposal can be submitted by a Principal Investigator. In addition, he/she may collaborate in only one other proposal as a co-Investigator. Group and collaborative proposals involving more than one organization must be submitted as a single administrative

package from one of the organizations involved. Due to the limited availability of funds, prospective proposers are strongly urged to contact the program officer listed at the end of this solicitation for guidance. The IMR program normally considers proposals for single instruments or a single system. If more than one instrument is requested, the proposal must indicate their relative priority, and give explanations and scientific justification for each item requested. A proposal listing assorted instruments without a focused research or research training program will not be accepted. Proposers requesting instruments for multidisciplinary use involving other Divisions within NSF are encouraged to discuss their plans with the appropriate Program Officers prior to submission (see "Other NSF Programs of Interest"). Multidisciplinary instrumentation proposals must be submitted to only one NSF Division. These should include a paragraph in the first page describing the multidisciplinary nature of the proposal. Proposals that are multidisciplinary in nature will be co-reviewed by the appropriate Division(s) within NSF.

**Proposals submitted to IMR that are under active review elsewhere in the Foundation are considered inappropriate and will be returned without review.**

The IMR program accepts proposals from PhD granting institutions to purchase and/or develop instruments that cost more than \$100,000. The program accepts proposals from non-PhD granting institutions to purchase and/or develop instruments that cost more than \$50,000. Because of the high cost and complexity of major instruments, proposals for multi-user instruments are strongly encouraged. Proposals requesting funds to purchase and/or develop instruments costing less than \$100,000 (less than \$50,000 for non-PhD granting institutions) will be returned without review. Such proposals should be submitted to the appropriate disciplinary program(s) for review.

#### **Eligible Project Costs:**

Eligible project costs are those total project costs that are properly and reasonably allocable to the research instrumentation based on the percentage of time that it is to be used for research and research training. For instrument acquisition proposals, eligible project costs include: costs of instrument purchase, installation, commissioning and calibration. The direct and indirect cost of operation, maintenance, and other appropriate technical support during the award period are also eligible. For instrument development proposals, eligible project costs include all of the items listed above, as well as the direct and indirect costs associated with support for personnel engaged in instrument development. Direct and indirect costs associated with research projects to be conducted using the requested instrumentation (including researchers' salary and students' stipends) are not eligible costs under the IMR program.

## **IV. AWARD INFORMATION**

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Funding for the IMR program is subject to change annually depending on the availability of funds. It is expected that the support for IMR awards in fiscal year (FY) 2005 will be at about the same level as in FY 2004. In FY 2004, the program awarded \$6.7 million for instrument acquisition and development, and education and training activities. The minimum award size in the IMR program is \$100,000 for PhD-granting institutions and \$50,000 for non-PhD granting institutions. The typical award duration is one to three years.

## **V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS**

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### **A. Proposal Preparation Instructions**

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#### **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](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](mailto:pubs@nsf.gov).

The following instructions supplement the GPG guidelines. IMR proposals must follow the format of research proposals. An instrumentation proposal should include a brief description of the proposed instrument and the new scientific and educational capability it will provide, a statement of the potential impact it will have on the research and education/training of students, and the potential impact it is expected to have on one or more fields of scientific research, education, or infrastructure.

Each potential major user should describe the project(s) for which the equipment will be used. These descriptions should be succinct, not necessarily as detailed as in an individual research proposal, and should emphasize the intrinsic merit of the activity and the importance of the equipment to it. A brief summary will suffice for auxiliary users. For the review process, you may suggest the names, affiliations, and e-mail addresses of six to eight individuals outside the participating institutions, including women and members of underrepresented groups, who have expertise in the proposed activities and are not collaborators, and who could provide an unbiased evaluation, if

requested, of your proposal. Names of individuals who should not be used as reviewers may also be included. Also provide, through Fastlane, the names and affiliations of all collaborators over the past four years, and indicate the nature of the collaboration. This information must be sent via the FastLane System using the "List of Suggested Reviewers" page within the Proposal Preparation function. Special attention should be given to the following required information which is essential for the review and decision making process.

## Sections of the Proposal

**1. Title.** The IMR proposal title should be brief and should not include abbreviations. It should begin with "Acquisition of ---" or "Development of ---" and include Education and/or Student Training in the title. For example: "Acquisition of a Rheometer for Polymer Materials Research and Education." Another example: "Development of an Ultrahigh Resolution Photoemission System for Studies of Quantum Structures and Student Training." The title should not refer to any specific supplier or model numbers, and must not exceed 15 words.

**2. Project Summary.** The project summary should include a brief description of the proposed instrument and the new scientific and educational capabilities they will provide, a statement of the potential impact it will have on the research and education/training of students, and the potential impact it is expected to have on one or more fields of scientific research, education, or infrastructure. Some examples of broader impact activities are given in the NSF web site at <http://www.nsf.gov/pubs/2003/nsf032/bicexamples.pdf>. **Proposals that do not separately address both merit criteria within the one page Project Summary will be returned without review.**

**3. Table of Contents.** This section is automatically prepared by the fastlane system.

**4. Project Description (including Results from Prior NSF Support).** The Project Description must clearly justify the instrument requested in terms of the scientific research and educational activities that are being proposed. The new measurement capability that the new instrument will provide should be clearly described. The following items are required as part of the Project Description (limited to 15 pages):

*a. Instrument Development/Construction Projects:* If development/construction of a new instrument is proposed, the design must provide sufficient detail for reviewers to assess its feasibility. Reviewers will be asked to comment on the potential impact that the proposed instrument will have on research and the education/training of students. A brief statement of the anticipated impact of the proposed project is required. The following must be provided:

- An analysis of the need and broad applicability of the proposed instrument, including potential uses and users in the field of materials research and education;
- A description of specific initial research plans for the instrument, and plans for long-range future usage;
- Plans for the construction of the instrument;
- A description of preliminary work completed;
- An analysis of potential problems/issues, and proposed solutions;
- An estimated timeline for completion within the requested duration of support;
- A plan to evaluate the performance of the instrument; and
- A description of industrial or national laboratory collaborations or links during the development stages and subsequent to development/construction completion, if appropriate;

*b. Instrument Acquisition Projects:* If purchase of a new instrument is proposed, the following information must be provided:

- A technical description of the proposed instrument, including the specific model(s) chosen, in sufficient detail for reviewers to evaluate the essential need and appropriateness of the instrument for the research and educational activities proposed; and a paragraph indicating whether the instrument will be used for new research project(s) or existing research project(s);
- A discussion of the research project(s) and educational activities for which the instrument will be used in sufficient detail for reviewers to evaluate its scientific merit. For multi-user instruments, no more than four or five major research projects (projects utilizing 20% or more of the instrument time) may be described in succinct form, emphasizing the intrinsic scientific and educational merit of the activities and the importance of the equipment to them;
- A brief summary of all additional projects, i.e., those involving less than 20% of the instrument time, is sufficient;
- In the event the instrumentation proposal is linked to a research proposal under review in any of the disciplinary NSF programs, a clear statement of this link must be made. A summary of the research and educational goals contained in the proposal must be given, as well as the complementarity of the proposals. However, it is not necessary to duplicate the scientific sections of the research proposal in the instrumentation proposal;
- If the instrument is to be used for existing research projects, a discussion of the new capability the proposed instrument will provide, and how the new instrument will significantly impact the project(s) must be given. If comparable equipment to that requested is already at the proposing institutions, or if replacement of existing equipment is requested, rationale must be provided. This includes comparable government-owned equipment that is on-site; and
- Plans for implementing the proposed research and educational activities.

Instrumentation proposals must discuss arrangements for **Acquisition, Maintenance, Operation, Use Plans, and Shared Use** of the instrument including:

- Overall acquisition plan;
- Biographical sketch of the person(s) who will have overall responsibility for maintenance and operation and a brief statement of qualifications;
- Description of the physical facility, including floor plans or other appropriate information, where the equipment will be located;
- Statement of why the equipment is severable or non-severable from the physical facility;
- Plans for the allocation of time on the instrument and the criteria used for allocation;
- An estimate of the fraction of time the instrument will be used by the various local and other potential users;
- A detailed plan of how use charges will be assessed (if applicable);
- Annual budget for operation and maintenance of the proposed equipment, indicating source of funds; and
- Brief description of other support services available for this instrument, and the annual budget for their operation, maintenance and administration.

In addition to the above requirements, the Project Description within its 15-page limitation should also provide, if applicable, results from Prior NSF Support in the past five years.

**5. References Cited.** References are required with the names of all authors, the article title, journal title, book title, volume number, page number(s) and the year of publication.

**6. Biographical Sketch(es).** A biographical sketch (limited to two pages) is required for each individual identified as senior project personnel. The biographical sketch should provide professional preparation, appointments, publications, synergistic activities, collaborators and other affiliations including names of PhD and postdoctoral advisors.

**7. Budget.** Each proposal must contain a budget for each year of support requested. A budget justification of up to three pages is authorized to provide necessary justification and documentation for the total cost of the proposed project or instrumentation, the itemized cost of each instrument/component. **Only equipment funds requested from NSF should be given in the line D of the proposal budget.**

Proposers are reminded to identify the program announcement/solicitation number (05-522) 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

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### Cost Sharing:

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

### Other Budgetary Limitations:

Minimum equipment cost of \$50,000 for proposals from non-PhD granting institutions; minimum equipment cost of \$100,000 for proposals from PhD granting institutions.

## C. Due Dates

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

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

February 16, 2005

January 11, 2007

Second Thursday in January annually thereafter

Second Thursday of January thereafter.

## D. FastLane Requirements

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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](mailto: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

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### A. NSF Proposal Review Process

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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:**

1. ***Essential need for the instrument.*** The utility, impact or potential impact that the instrument will have on the proposed research and/or training/educational activities, or on a field of research.
2. ***Impact on Infrastructure.*** How the instrument will contribute to broader long-range goals of the institution, fields of science, and education.
3. ***The ability of the applicants to operate and maintain the instrument.*** Evaluation of the qualifications of the person (s) responsible for the instrument, allocation of time on the instrument, and provisions for operation and long-term maintenance of the instrument over its expected lifetime.
4. ***Appropriateness of development plans.*** For instrument development/construction, an assessment of feasibility, costs and schedule for completion, and plans for integration and use of the instrument in the research and educational activities described subsequent to the completion of the development/construction phase.
5. ***Relevance to research and education.*** The proposed instrumentation acquisition/development should be relevant to the research and educational activities. Potential toward achieving national goals of strategic importance and impact on all sectors of materials research community should be detailed in the proposal. ?The expected impact on all sectors of the materials research community and potential for enhancing linkages between sectors should be significant.

## **B. Review Protocol and Associated Customer Service Standard**

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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 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.

In most cases, proposers will be contacted by the Program Officer after his or her recommendation to award or decline funding has been approved by the Division Director. This informal notification is not a guarantee of an eventual award.

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

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### A. Notification of the Award

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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

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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](mailto: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](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

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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

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General inquiries regarding this program should be made to:

- Charles Bouldin, Program Director (IMR), Directorate for Mathematical & Physical Sciences, Division of Materials Research, 1065 N, telephone: (703) 292-4920, email: [cbouldin@nsf.gov](mailto:cbouldin@nsf.gov)

For questions related to the use of FastLane, contact:

- Maxine E. Jefferson-Brown, Computer Specialist, Directorate for Mathematical & Physical Sciences, Division of Materials

## 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 and instrument development are listed below. In NSF divisions that have no separate instrumentation program, needs are provided for in regular research grant programs.

Program Title	Brochure	Telephone
Instrumentation For Materials Research- Major Instrumentation Projects (IMR-MIP)	<a href="http://www.nsf.gov/pubs/2003/nsf03604/nsf03604.htm">http://www.nsf.gov/pubs/2003/nsf03604/nsf03604.htm</a>	(703)-292-4920
Chemistry Research Instrumentation and Facilities	<a href="http://www.nsf.gov/mps/divisions/che/news/c_notices.htm#program">http://www.nsf.gov/mps/divisions/che/news/c_notices.htm#program</a>	703-292-4953
Advanced Technologies and Instrumentation Program, Division of Astronomical Sciences	<a href="http://www.nsf.gov/mps/ast/ati.htm">http://www.nsf.gov/mps/ast/ati.htm</a>	703-292-4892
Major Research Instrumentation	<a href="http://www.inside.nsf.gov/od/oia/programs/mri/start.htm">http://www.inside.nsf.gov/od/oia/programs/mri/start.htm</a>	703-292-8040
Scientific Computing Research Environments for the Mathematical Sciences (SCREMS)	<a href="http://www.nsf.gov/mps/divisions/dms/news/c_notices.htm#program">http://www.nsf.gov/mps/divisions/dms/news/c_notices.htm#program</a>	703-292-4879
Earth Sciences Instrumentation and Facilities	<a href="http://www.geo.nsf.gov/EAR/IF/facil.htm">http://www.geo.nsf.gov/EAR/IF/facil.htm</a>	703-292-8558
Ocean Technology and Interdisciplinary Coordination Program (OTIC)	<a href="http://www.geo.nsf.gov/oce/ocefac_over.htm">http://www.geo.nsf.gov/oce/ocefac_over.htm</a>	703-292-8580
Oceanographic Instrumentation and Technical Services Program	<a href="http://www.geo.nsf.gov/cgi-bin/geo/showprog.plid=39&amp;div=oce">http://www.geo.nsf.gov/cgi-bin/geo/showprog.plid=39&amp;div=oce</a>	703-292-8580
Polar Instrumentation and Technology Development	<a href="http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf0025">http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf0025</a>	703-292-8030
Improvements in Facilities, Communications, and Equipment at Biological Field Stations and Marine Laboratories (FSML)	<a href="http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf02040">http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf02040</a>	703-292-8470
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