

## **Collaborative Research in Chemistry (CRC)**

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### **Program Solicitation**

**NSF 04-601**

*Replaces Document NSF 03-583*



**National Science Foundation**

Directorate for Mathematical and Physical Sciences

Division of Chemistry

### **Preliminary Proposal Due Date(s) (required):**

October 14, 2004

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

February 16, 2005

by invitation only

## **SUMMARY OF PROGRAM REQUIREMENTS**

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### **General Information**

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#### **Program Title:**

Collaborative Research in Chemistry (CRC)

#### **Synopsis of Program:**

The CRC Program is designed to promote interdisciplinary collaborative research in a coherent, defined project at the forefront of the chemical sciences. CRC proposals will involve three or more investigators with complementary expertise. Co-investigators may include researchers with backgrounds in diverse areas of chemistry and other science and engineering disciplines appropriate to the proposed research. The use of cyber-infrastructure to enable and enhance collaborations is encouraged. Projects should be scientifically focused in areas supported by the NSF Division of Chemistry, limited in duration, and substantial in their scope and impact.

In Fiscal Year 2005, the CRC Program will use preliminary proposals to identify promising projects. Full CRC proposals will be considered by invitation only, based on peer review of preliminary proposals.

#### **Cognizant Program Officer(s):**

- Katharine J. Covert, Program Director, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-4950, fax: (703) 292-9037, email: [kcovert@nsf.gov](mailto:kcovert@nsf.gov)
- Charles D. Pibel, Program Officer, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-4971, email: [cpibel@nsf.gov](mailto:cpibel@nsf.gov)
- Raima M. Larter, Program Director, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-5344, fax: (703) 292-9037, email: [rlarter@nsf.gov](mailto:rlarter@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:** Only U.S. academic institutions and non-profit research organizations may submit proposals.
- **PI Eligibility Limit:**

An investigator may participate (as a PI, co-PI or senior research associate) in only one CRC proposal submitted to this competition.

The PI must be affiliated with a U.S. academic institution or non-profit research organization. Other investigators may be affiliated with U.S. academic institutions, non-profit research organizations, industry, government laboratories, or international institutions. Unaffiliated scientists may also be eligible for support under a proposal submitted by an eligible institution. No CRC award funds may go directly to industry, government laboratories or international institutions.

- **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:** 6 , depending on award size and proposal quality
- **Anticipated Funding Amount:** \$3,000,000 (approximately) in FY 2005, depending on availability of funds

#### **Proposal Preparation and Submission Instructions**

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

- **Preliminary Proposals:** Submission of Preliminary Proposals is required. Please see the full text of this solicitation for further information.
- **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 not required.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Not Applicable.

##### **C. Due Dates**

- **Preliminary Proposals (required) :**  
October 14, 2004
- **Full Proposal Deadline Date(s)** (due by 5 p.m. proposer's local time):  
February 16, 2005  
by invitation only

### 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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The Division of Chemistry (CHE) of the National Science Foundation (NSF) expects to make awards in Fiscal Year 2005 to support activities of collaborative research groups. Proposals for Collaborative Research in Chemistry (CRC) should provide a plan designed to have significant impact in scientifically focused areas of recognized or emerging importance to the chemical sciences.

The chemical sciences thrive on the sharing of ideas among researchers from various disciplines. Indeed, there are research needs that can only be met by teams of investigators drawn from diverse research areas. The advantages of pooled insights, complementary expertise, diverse points of view, and shared tasks can make a successful research collaboration more than the sum of its parts. The Division supports multi-investigator projects to foster research collaborations, promote exploration of multidisciplinary projects, and encourage exploitation of unique opportunities for progress on significant problems centered in the chemical sciences. The CRC Program provides a specific focus and specific mode of support for collaborative research.

In Fiscal Year 2005, the CRC Program will use preliminary proposals to identify promising projects. Full CRC proposals will be considered by invitation only, based on peer review of preliminary proposals.

## II. PROGRAM DESCRIPTION

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The CRC Program enables researchers from diverse scientific and engineering backgrounds to respond to recognized scientific needs, to take advantage of current scientific opportunities, or to prepare the groundwork for anticipated significant scientific developments in chemistry. CRC proposals will involve three or more investigators with complementary expertise. The members of the collaborative team can come from more than one institution and can include non-academic and international scientists. The principal investigator will most likely be a chemist; however, there is no restriction on the scope of disciplines represented by the co-investigators. Investigators may include, in addition to chemists, researchers from other science and engineering disciplines appropriate to the proposed research. Collaborations involving investigators at undergraduate institutions are encouraged. The use of cyber-infrastructure to enable and enhance collaborations is also encouraged.

Chemistry is the focus of this program. Ancillary benefits to other fields of science, although desirable, are not sufficient to make a project suitable for this program. Awards made under this program are intended to foster synergy among collaborators that cannot be achieved with individual grants. Therefore, this program will support projects requiring the collective effort and close collaboration of several research groups to reach significant scientific goals. Projects should be scientifically focused in areas supported by the Division of Chemistry, limited in duration, and substantial in their scope and impact.

Examples of possible outcomes are:

- Substantial progress toward answering a set of major unresolved questions in chemistry.
- Undergraduates, graduate students and postdoctoral researchers trained in an important interdisciplinary area.
- New and exemplary modes of collaborations.

Initiators of proposals are strongly urged to discuss ideas for a project with a program officer listed at the end of this document. The CRC Program encourages collaborations with non-academic and international scientists. These cooperative research projects should be jointly designed and implemented by the research partners to achieve overall balance and mutual benefit. Some brief guidelines are given below.

Principal Investigators should ensure the proposed CRC project does not overlap significantly with ongoing federally funded research. Proposals in topical areas covered by the Fiscal Year 2005 NSF competitions in Nanoscale Science and Engineering or Biocomplexity in the Environment will not be considered in the CRC program. The proposed research must be appropriate for NSF and for the Division of Chemistry. Additional information is available through the NSF Guide to Programs (<http://www.nsf.gov/pubsys/ods/getpub.cfm?gp>). NSF reserves the right to return without review proposals that are not appropriate for the CRC Program. Principal Investigators should contact a cognizant program officer if there are any questions about the suitability of a proposal for the CRC Program.

Because of special requirements, investigators considering a CRC proposal with an industrial, government or international co-investigator are strongly encouraged to contact a cognizant program officer early in the planning process. Such proposals require an institutional letter of collaboration from the partner organization that confirms the participation of a co-investigator. This letter should be included in the Supplemental Documentation (see Proposal Preparation Instructions). The letter should describe the plan of interaction with the U.S. academic institution, the time commitment of the researcher(s), and the nature of the collaborative research activities. Letters of general support or recommendation are inappropriate and may cause a proposal to be returned without review.

Co-investigators associated with entities such as industry, national laboratories, state agencies, and Federally Funded Research and Development Centers (FFRDC) must be supported by their own organization. However, it is appropriate for universities to fund research expenses incurred when scientists from such entities work at university sites. In addition, it is appropriate for students supported through universities to work at a partner industrial laboratory, FFRDC or comparable site. Federal employees may not receive salaries or in other ways augment their agency's appropriation through grants made by this program, and no funds for major equipment at FFRDCs are allowed. Support for collaborations with international scientists is provided through the NSF grant to the submitting U.S. institution. This means no CRC award funds may go directly to foreign institutions. The proposal may include up to \$100,000 in participant support costs, over the duration of the grant, for international collaborative research activities. Travel and incidental research costs may be included; salaries may not. These international interactions must feature a joint scientific workplan and should be clearly described in the Project Description. If, after review, a proposal is recommended for funding, the CRC Program Officer will work with Program Officers from the NSF Office of International Science and Engineering and the key project personnel to develop a detailed plan consistent with applicable international arrangements.

### **III. ELIGIBILITY INFORMATION**

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Only U.S. academic institutions and non-profit research organizations may submit proposals.

An investigator may participate (as a PI, co-PI or senior research associate) in only one CRC proposal submitted to this competition.

The PI must be affiliated with a U.S. academic institution or non-profit research organization. Other investigators may be affiliated with U.S. academic institutions, non-profit research organizations, industry, government laboratories, or international institutions. Unaffiliated scientists may also be eligible for support under a proposal submitted by an eligible institution. There are significant restrictions on grant funds for industrial, government or international co-investigators.

### **IV. AWARD INFORMATION**

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Under this solicitation, proposals may be submitted for support for up to five years. Although it is anticipated that award size will average \$500,000 per year, there is no pre-determined maximum or minimum award size. NSF expects to fund up to six awards during FY2005, depending on the quality of submissions and the availability of funds. The anticipated date of awards is July 2005.

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

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

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##### **Preliminary Proposals (*required*):**

Preliminary proposals are required for the CRC Competition. One preliminary proposal per project should be submitted even if the team plans to use the linked collaborative mechanism for the full proposal. Additional directions are given below:

Cover Sheet, including a tentative title for the CRC Project. The requested budget amount and duration are both zero on a preliminary proposal. The PI must select the option indicating that this is a preliminary proposal.

Project Summary, limited to one page, including the names and affiliations of all senior personnel. The project summary must address both the intellectual merit and broader impacts of the proposed CRC project.

Project Description, limited to five pages, should present

- the proposed research problem, key preliminary results and outline of the research plan;
- the role of each collaborative investigator and relevant expertise;
- the collaborative approach to be used, including discussion of collaborative education plans, management plans and evaluative methods; and
- an estimate of the requested budget and duration

References Cited may contain up to ten leading references to provide context for the proposed research.

Biographical Sketches for the PI, co-PIs and all Senior Personnel, using the NSF standard format.

Current and Pending Support statements for the PI, co-PIs and all Senior Personnel.

The remaining proposal sections (Budget, Budget Justification, Facilities and Equipment, Supplemental Documents) are not permitted in this preliminary proposal. Letters of support or collaboration are not permitted in this preliminary proposal.

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

Proposers are strongly encouraged to consult the proposal submission checklist included in the Grant Proposal Guide as they prepare their proposal. Proposals not compliant with the proposal preparation guidelines, as supplemented by the following instructions, may be returned without review. The items outlined below pertain to the corresponding sections in the Grant Proposal Guide, Chapter II.C.2.

Only projects that have submitted a preliminary proposal and have been invited to present a full proposal, based on peer review of the preliminary proposals, will be considered. All others will be returned without review.

- Project Summary. One-page limit, including the names and affiliations of all senior personnel. The project summary must address both the intellectual merit and broader impacts of the proposed CRC project.
- Project Description. A total of twenty (20) pages, including Results from Prior Support, Modes of Collaboration and Education, and Management Plan. CRC proposals are likely to be read by non-specialists at some stage of the review process. It is therefore particularly important that they be written to emphasize the impact of the projects on the chemical sciences in a broad context.

i) Proposed Research. Narrative, not to exceed eighteen (18) pages, consisting of the following items:

- An explanation of the scientific context, intellectual merit, relevance to chemistry and timeliness of the proposed project.
- A description of the proposed research.
- A justification for why a collaborative effort involving at least three investigators is necessary to carry out the proposed project.

- A description of the contribution to be made by each senior investigator.
- A discussion of the broader impacts of the proposed work.
- A timeline for the planned work and a justification for the duration.
- Plans for disseminating the results.
- Results from prior NSF support. List all NSF awards held by any investigator (PI, co-PI or other project partner) in the past five years. The most relevant project must also be described in more detail, following the format described in the Grant Proposal Guide. Results from Prior NSF Support are limited to two pages, in total.

ii) Modes of Collaboration and Education. Narrative, not to exceed one page, describing

- The mode of collaboration.
- The mode of training undergraduate students, graduate students, and postdoctoral researchers, including co-mentorship or other collaborative training.
- The modes of dissemination including workshops and education/outreach activities.

iii) Management Plan. Narrative, not to exceed one page, describing

- How the group effort will be coordinated.
- How decisions will be made regarding the conduct of the project.
- How the collaboration will be evaluated.

- References Cited. References should include full titles of articles and book chapters cited. This section includes bibliographic citations only and must not be used to provide parenthetical information outside of the Project Description. Please indicate with an asterisk (\*) references co-authored by two or more proposal investigators.
- Biographical sketches. For all senior personnel, provide a brief biographical sketch using the format described in the Grant Proposal Guide. Note that recent collaborators and other affiliates should also be collected into the combined list given in the Supplemental Documentation (see below).
- Budget. Include annual budgets for each year; a cumulative budget will be automatically generated by the FastLane system. A detailed budget justification (up to three pages) should document proposed expenses. Multi-institutional proposals may use either the award-subaward or linked collaborative proposal mechanisms (see GPG guidelines, chapter II.D.3).
- Current and Pending Support. A full description of the total level of current and pending support from all sources for the key personnel. Any overlap between federally funded projects and the proposed research must be clarified.
- Facilities. A description of the facilities (including laboratories and computational facilities) that will be made available to the project. Separate facilities descriptions should be included for multi-institutional projects or those involving non-academic partners.
- Supplementary Documentation. Provide a combined, alphabetized list of all scientists, with current affiliations, who have collaborated with the PI or co-PIs in the last 48 months or are otherwise affiliated with the PIs or co-PIs. Required letters of collaboration from national laboratories, international institutions, and industry should be included in this section. Letters of collaboration from investigators not supported on the grant are also appropriate. Letters of recommendation or general support are not permitted.
- Suggested Reviewers/Reviewers Not to Include (Optional). Please include potential reviewers who span the range of disciplines represented by the CRC proposal.

Proposers are reminded to identify the program announcement/solicitation number (04-601) 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 in proposals submitted under this Program Solicitation.

### **Budget Preparation Instructions:**

Multi-institutional proposals may use either the award-subaward mechanism or the linked collaborative proposal mechanism. Both of these are discussed in the GPG, Chapter II.D.3.

Funds should be included in the travel budget for the team of researchers to make two trips to NSF headquarters (Arlington, Virginia) during the course of the award.

### C. Due Dates

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

#### **Preliminary Proposals (required):**

October 14, 2004

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

February 16, 2005  
by invitation only

### 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:**

In addition to the National Science Board merit review criteria, reviewers will be asked to apply the following criteria when reviewing CRC preliminary proposals and full proposals:

- Importance of proposed plan to areas supported by the Division of Chemistry.
- Long-term scientific impact of the proposed activity. Projects that have a high degree of risk will receive favorable consideration providing that the potential benefit is correspondingly high.
- Justification of the value of the collaborative effort.
- Extent to which the group effort is focused on a cohesive well-delineated goal.
- Timeliness of the planned work. Projects in emerging research areas are especially encouraged.
- Appropriateness of the group members and group structure for the task.
- Effectiveness of the educational plan and the management plan.
- Appropriateness of the proposed timeline and budget.

Any project requesting \$750,000 or more in total costs per year may be subject to a site visit as part of the review process.

## **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 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**

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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 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](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](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/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

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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:

- Katharine J. Covert, Program Director, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-4950, fax: (703) 292-9037, email: [kcovert@nsf.gov](mailto:kcovert@nsf.gov)
- Charles D. Pibel, Program Officer, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-4971, email: [cpibel@nsf.gov](mailto:cpibel@nsf.gov)
- Raima M. Larter, Program Director, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-5344, fax: (703) 292-9037, email: [rlarter@nsf.gov](mailto:rlarter@nsf.gov)

For questions related to the use of FastLane, contact:

- Paul G. Spyropoulos, Computer Specialist, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-4968, fax: (703) 292-9037, email: [pspyropo@nsf.gov](mailto:pspyropo@nsf.gov)

## IX. OTHER PROGRAMS OF INTEREST

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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:

- Environmental Molecular Science Institutes ([NSF 04-509](#))
- Frontiers in Integrative Biological Research ([NSF 04-596](#))
- Physics Frontier Centers ([NSF 01-112](#))
- Chemical Bonding Centers Phase I ([NSF 04-612](#))
- Nanoscale Science and Engineering ([NSF 04-43](#))
- Sensors and Sensor Networks ([NSF 04-522](#))
- Materials World Network: Cooperative Activity in Materials Research between US Investigators and their Counterparts Abroad ([NSF 04-599](#))

The NSF Division of Chemistry webpage is <http://www.nsf.gov/chem/>

## ABOUT THE NATIONAL SCIENCE FOUNDATION

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

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving

financial assistance from NSF, although some programs may have special requirements that limit eligibility.

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

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