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Research Training Groups in the Mathematical Sciences (RTG)

PROGRAM SOLICITATION
NSF 11-540

REPLACES DOCUMENT(S):
NSF 05-595

National Science Foundation

Directorate for Mathematical & Physical Sciences
  Division of Mathematical Sciences

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

July 19, 2011

June 05, 2012

First Tuesday in June, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), **NSF 13-1, was issued on October 4, 2012 and is effective for proposals submitted, or due, on or after January 14, 2013. Please be advised that the guidelines contained in NSF 13-1 apply to proposals submitted in response to this funding opportunity.**

Please be aware that significant changes have been made to the PAPPG to implement revised merit review criteria based on the National Science Board (NSB) report, National Science Foundation's Merit Review Criteria: Review and Revisions. While the two merit review criteria remain unchanged (Intellectual Merit and Broader Impacts), guidance has been provided to clarify and improve the function of the criteria. Changes will affect the project summary and project description sections of proposals. Annual and final reports also will be affected.

A by-chapter summary of this and other significant changes is provided at the beginning of both the *Grant Proposal Guide* and the *Award & Administration Guide*.

Please note that this program solicitation may contain supplemental proposal preparation guidance and/or guidance that deviates from the guidelines established in the Grant Proposal Guide.

Revision Summary

This program solicitation is one of two updates to the program solicitation NSF 05-595, "Enhancing the Mathematical Sciences Workforce in the 21st Century (EMSW21)." The EMSW21 program formerly comprised three components:

1. Vertical Integration of Research and Education in the Mathematical Sciences (VIGRE)
2. Research Training Groups in the Mathematical Sciences (RTG)
3. Mentoring Through Critical Transition Points in the Mathematical Sciences (MCTP)

The VIGRE component has been discontinued. Updated program solicitations for the RTG and MCTP components of EMSW21 are being issued separately.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Research Training Groups in the Mathematical Sciences (RTG)

Synopsis of Program:

The long-range goal of the Division of Mathematical Sciences (DMS) Workforce program is to increase the number of well-prepared U.S. citizens, nationals, and permanent residents who pursue careers in the mathematical sciences and in other NSF-supported disciplines. The Research Training Groups in the Mathematical Sciences (RTG) activity is a part of the Workforce program. RTG supports education through research involvement in groups centered on a common research interest that span the entire spectrum of educational levels from undergraduates through postdoctoral associates.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Andrew D. Pollington,1025 N, telephone: (703) 292-4878, email: adpollin@nsf.gov

- Victor Roytburd,1025 N, telephone: (703) 292-8584, email: vroytbur@nsf.gov

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

- 47.049 --- Mathematical and Physical Sciences

Award Information

Anticipated Type of Award: Standard and Continuing Awards for 3 to 5 years

Estimated Number of Awards: 3 to 10 Varies with type and size of award

Anticipated Funding Amount: $10,000,000 subject to the availability of funds. See Section IV for detailed information.

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

PI Limit:

The categories of proposers identified in the Grant Proposal Guide are eligible to submit proposals under this program solicitation.

Eligible Participants: **Participating undergraduates, graduate students and postdoctoral associates supported with NSF funds in RTG must be citizens, nationals, or permanent residents of the United States or its territories and possessions.** No citizenship requirement applies to Principal Investigators.

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

None Specified

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable

- **Preliminary Proposal Submission:** Not Applicable

- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. 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.
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.

- **Indirect Cost (F&A) Limitations:** Not Applicable

- **Other Budgetary Limitations:** Not Applicable

C. Due Dates

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

  July 19, 2011

  June 05, 2012

  First Tuesday in June, Annually Thereafter

Proposal Review Information Criteria

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: Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

TABLE OF CONTENTS

I. INTRODUCTION

The Research Training Groups in the Mathematical Sciences (RTG) program provides funds for the training of U.S. students and postdoctoral researchers in the mathematical sciences. Proposals are solicited from groups of researchers based in a sub-area of the mathematical sciences or linked by a multidisciplinary theme to support training at educational levels from undergraduate to postdoctoral within that focus. RTG awards are intended to support training programs that have strong potential to increase the number of well-prepared U.S. citizens, nationals, and permanent residents who pursue careers in the mathematical sciences and in other NSF-supported disciplines.

Those institutions already holding a grant from the DMS Workforce program must explain how the proposed projects will interact with the existing one. DMS program officers will consider these issues in the context of overall management of the portfolio of Workforce program awards.

Applicants must identify goals for their project, specify plans for measuring and reporting progress, and supply data about past achievements and the improvements expected. This information will be an integral part of the review process and is more fully discussed in the Proposal Preparation section below. It should be kept in mind that RTG grants are for training and not the support of PI research activities. Funding requested for non-training activities necessary for RTG projects should be kept to a minimum, thoroughly justified in the Project Description, and fully explained in the Budget Justification.

II. PROGRAM DESCRIPTION

The long-range goal of the RTG activity is to increase the number of well-prepared U.S. citizens, nationals, and permanent residents who pursue careers in the mathematical sciences and in other NSF-supported disciplines, while broadening trainees' background and perspective. A significant part of this goal is to directly increase the proportion and the absolute number of U.S. students at the RTG sites who pursue graduate studies and complete advanced degrees in the mathematical sciences. A related goal of RTG is based on the fact that the direct impact of RTG funds cannot yield a substantial proportional increase in national workforce production; the funds are simply not of the order of magnitude to create such an infrastructure. Therefore, indirect impacts, in which RTG can serve as a catalyst beyond the directly-supported students in its home departments and beyond the institutions receiving

RTG funds, are crucial as well. Practices and cultural changes that support direct and indirect impacts of this nature will be key strengths in an RTG proposal. Such aspects include, but are not limited to, ideas for attracting strong U.S. students to careers in the mathematical sciences and seeing them through to completion of their studies, and/or evidence of success in doing so; and effective dissemination of best practices that can serve as a national model.

The RTG program provides groups of researchers having related research goals in the mathematical sciences with funds to foster research-based training and education. The groups may include researchers and students from different departments and institutions, but the research-based training and education activities must be based in the mathematical sciences. The RTG projects are expected to vary in size, scope, and proposed activities and in their plans for organization, participation, and operation.

Addressing all stages (from undergraduate through postdoctoral) of student involvement in RTG proposals is extremely important. Proposals that focus on only one stage will be viewed as less competitive unless a compelling argument is made justifying such a course.

Increasing the number of U.S. citizens, nationals, or permanent residents entering the scientific workplace is the goal of RTG; therefore a substantial plan for involving undergraduates in a research training program will increase the probability of obtaining funding. When used in reference to undergraduates, the word "research" should be given its broadest interpretation.

The group of a successful proposal will have collaborating faculty with a history of research accomplishments. This group should have a history of working with students and/or postdoctoral investigators, and they should present a strong plan for recruiting students who are U.S. citizens, nationals, or permanent residents into their program. The RTG program is not meant to establish a group, but to enhance the training activities of a well established one.

Graduate Traineeships. Graduate trainees form a pivotal component of the integration of activities in RTG grants. Their participation should result in:

(1) involvement with research activities that include undergraduates, other graduate students, postdoctoral associates, and/or faculty members;

(2) graduate education that is both broad and deep;

(3) significant teaching experience; and

(4) communication skills appropriate for both expert and non-expert audiences.

Mentoring, that is, guidance in professional development, is a critical strategy for preparing graduate trainees to become successful researchers, communicators, and mentors. Opportunities such as international collaboration and internship experiences in industry, business, government laboratories, or other science and engineering departments can contribute to broadening the education program. Graduate trainees are expected to have a minimum of one year of supervised teaching, with at least one term in which the student has substantial responsibility for a class. Some element of their activities should help students develop proficiency in the presentation of mathematical sciences research in both written and oral formats and in the ability to place their research in context.

RTG's have been developed to allow graduate students significant time for research, course work, and related activities. A graduate trainee can receive up to 33 months of non-teaching support from an RTG activity. RTG stipends cannot be used to pay students to fulfill teaching duties. Departments must demonstrate how the traineeships will improve the quality of the education their graduate students receive. The traineeships are not intended to replace existing institutional funding of research fellowships or scholarships.

Undergraduate Experience. In this program solicitation, the term "research experiences" for undergraduates includes all activities that involve undergraduates in discovery and generate within them appreciation and excitement for the mathematical sciences. A research experience does not have to result in the publication of a paper. Examples of research experiences include: faculty directed projects, whether involving one or many undergraduates, either during part of the academic year or the summer; internships in industry, business, or government laboratories; and participation in interdisciplinary research teams. Such experiences are intended to involve students in the creative aspects of mathematical sciences in a non-classroom setting. They are also expected to enhance the development of students' communication skills, with particular emphasis on the presentation of mathematical concepts in both written and oral contexts. In all cases, it is expected that these undergraduates receive mentoring to stimulate their further interest in the mathematical sciences.

Postdoctoral Associates. Effective RTG activities better prepare postdoctoral associates for their future careers, whether in academia, industry, or government. It is expected that at the end of the postdoctoral experience, each associate will have a well-defined independent research program, well-developed communication skills, a broad perspective of his or her field, and the ability to mentor.

The postdoctoral program can provide opportunities not traditionally found in mathematical sciences education and training, including interdisciplinary research experiences in connection with other departments and programs; participation in international research programs; internships in business, industry, or government laboratories; or participation in research institute programs suitably aligned with the associate's research interests. Postdoctoral associates are expected to teach, on average, one course per term while in residence at the sponsoring university. Over the duration of the postdoctoral appointment, this teaching should encompass a diverse set of instructional experiences at different levels of the curriculum. Likewise, it is expected that each RTG postdoctoral associate will submit a research proposal to a funding agency at some time during the course of the postdoctoral appointment. Mentoring to ensure that all postdoctoral associates become successful researchers, communicators, and mentors is a critical element of an RTG postdoctoral program, as is interaction of postdoctoral associates with undergraduate and/or graduate students.

The typical RTG postdoctoral appointment is for three years. An RTG postdoctoral associate may not have held the doctoral degree for more than two years as of January 1 of the year in which his or her appointment begins. Any exceptions to this restriction, occasioned for example by a career interruption, must be approved on a case-by-case basis by the cognizant program officer.

Budget. Proposals may include support requests for graduate and advanced undergraduate students, postdoctoral investigators, visitors, consultant services, travel, conferences, and workshops. Other budget items that are deemed to be essential to the success of the proposed activities may be proposed. No money may be requested to support the research efforts of the faculty, though grants will provide limited faculty salary for the purpose of organizing and managing the program.

Data. All RTG proposals require supporting data about the department's programs. An extensive discussion of the required data appears in the Supplementary Documentation section (V.A.8).

A successful RTG proposal will:

- be based in a U.S. academic institution that grants the Ph.D. in the mathematical sciences (faculty and students from a predominately undergraduate institution may participate);
- be focused on a major research theme in the mathematical sciences;

- have a realistic plan showing how the proposed activity would create new or enhanced research-based training and education experiences in the mathematical sciences for the students and postdoctoral investigators;
- be directed by a principal investigator, with at least two other faculty members, who will assist in management and participate fully in the educational and research plans of the RTG.

A successful RTG proposal must convince reviewers that the project:

- integrates research with educational activities;
- broadens the educational experiences of its students and postdoctoral associates to prepare them for a wide range of career opportunities;
- provides for developing professional and personal skills, such as communication, teamwork, teaching, mentoring, and leadership;
- includes an administrative plan and organizational structure that ensures effective management of the project resources;
- has an institutional commitment to furthering the plans and goals of the RTG project and to create a supportive environment for integrative research and education;
- has a plan for recruitment, selection, and retention of participants, including members of underrepresented groups, so as to increase the number and diversity of U.S. citizens, nationals, and permanent residents in the graduate and postdoctoral programs;
- serves as a national model by effectively disseminating best practices for attraction, retention, and high-quality preparation of students and postdoctoral associates in the mathematical sciences; and
- has a post-RTG plan. The RTG program is intended to help stimulate and implement permanent positive changes in education and training within the mathematical sciences in the U.S. Thus it is critical that an RTG site adequately plan how to continue the pursuit of RTG goals when funding terminates.

III. AWARD INFORMATION

In determining the number and size of awards, NSF considers the advice of reviewers and availability of funds. It is projected that award recommendations will be made annually in January. Estimated program budget, number of awards and average award size/duration are as follows but are subject to the availability of funds:

Budget: $10,000,000

Number of Awards: 3 to 10

Award size: up to $500,000 per year

Duration: 3 to 5 years

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

PI Limit:

The categories of proposers identified in the Grant Proposal Guide are eligible to submit proposals under this program solicitation.

Eligible Participants: **Participating undergraduates, graduate students and postdoctoral associates supported with NSF funds in RTG must be citizens, nationals, or permanent residents of the United States or its territories and possessions.** No citizenship requirement applies to Principal Investigators.

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

None Specified

Additional Eligibility Info:

Eligible Participants:

Participating undergraduates, graduate students, and postdoctoral associates supported with NSF funds in RTG must be citizens, nationals, or permanent residents of the United States and its territories and possessions.

An RTG postdoctoral associate may not have held the doctoral degree for more than two years as of January 1 of the year in which his or her appointment begins. Any exceptions to this date restriction, occasioned for example by a career interruption, must be approved on a case-by-case basis by the cognizant program officer.

No citizenship requirement applies to Principal Investigators.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program 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 nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

Important Proposal Preparation Information: FastLane will check for required sections of the full proposal, in accordance with *Grant Proposal Guide* (GPG) instructions described in Chapter II.C.2. The GPG requires submission of: Project Summary; Project Description; References Cited; Biographical Sketch(es); Budget; Budget Justification; Current and Pending Support; Facilities, Equipment & Other Resources; Data Management Plan; and Postdoctoral Mentoring Plan, if applicable. If a required section is missing, **FastLane will not accept the proposal.**

Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions. If the solicitation instructions do not require a GPG-required section to be included in the proposal, insert text or upload a document in that section of the proposal that states, "Not Applicable for this Program Solicitation." Doing so will enable FastLane to accept your proposal.

The following instructions supplement those found in the GPG and NSF Grants.gov Application Guide:

(1) **Cover Sheet**. So that your proposal is properly identified, select the number for the RTG program solicitation from the pull-down list. From the ensuing screen, select the Division of Mathematical Sciences and the Workforce program. (Grants.gov Users: The program solicitation number will be pre-populated by Grants.gov on the NSF Grant Application Cover Page. Grants.gov users should refer to Section VI.1.2. of the NSF Grants.gov Application Guide for specific instructions on how to designate the NSF Unit of Consideration.)

Begin the title of the project with the label "RTG:"

(2) **Project Summary** (1-page limit). The Project Summary consists of an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity. Provide a description of the activities that would result if the project is funded, including comments on its objectives, people to be supported, and intended impact. The project summary should include the following information: name of the host institution/organization and of any other institutions/organizations involved; the group(s) of people to be affected; number of people involved; number of summer weeks or academic year activity. The project summary must clearly address in separate statements (within the one-page summary): (i) the **intellectual merit** of the proposed activity; and (ii) the **broader impacts** resulting from the proposed activity.

(3) **Project Description (not to exceed a total of 15 pages)**. All RTG proposals must include an assessment plan and management plan as described below. In the assessment plan section, the proposal's goals must be clearly stated. This is necessary so that the National Science Foundation can verify, at the conclusion of the grant or another specified time, that the goals have been reached. This can be done if the goals are numerical, but other types of goals are acceptable as long as verification is not to be based on anecdotal evidence. The proposal's reviewers should have a clear picture of the present status of the research group's activity and how the activity would be enhanced should an award be made. This will be an important part of the review process.

Recall the long-range goal of the RTG program as stated at the beginning of this solicitation. Goals set for any proposal submitted to this program must be consistent with the overall program goal and help NSF achieve it.

For example, one goal might be to increase the number of U.S. citizens, nationals, and permanent residents earning undergraduate or graduate degrees by a specifically stated percentage. Other possibilities might be to keep the number of U.S. degree recipients constant, but to increase the percentage of those who go to the next stage of a mathematical sciences career or to improve the quality of the career paths they choose. Another possible goal might be to increase the number of U.S. students who receive doctoral degrees and accept a postdoctoral fellowship at a Group I department.

The management plan submitted in the proposal must contain a description of the actions that will be taken to achieve the goals set in the assessment plan. One basis for judging proposals will be the goals set and the likelihood that the actions described in the management plan will achieve them. This section should also contain information on the plans to recruit and retain U.S. students and members of underrepresented groups.

All RTG proposals must include the following items.

- Introduction. Discuss the vision, scope, objectives, and anticipated impact of the program, at the local institution and beyond.
- Proposed project. Describe the group's research program and provide a discussion of the programs envisioned for graduate trainees, undergraduates, and postdoctoral associates. Proposals should describe the proposed mechanisms for interaction among undergraduates, graduate trainees, postdoctoral associates, and faculty, and how these mechanisms will achieve the RTG goals. Identify specifically any new activities (courses, seminars, workshops, special programs, etc.) that will result from RTG support. Proposals should also describe how education will be integrated with research and ways in which the project will broaden the experience of the students and postdoctoral associates involved and enhance their career opportunities. In addition to research activities and the broadening of course work, describe activities such as industrial internships or arrangements with government laboratories, businesses, or other academic departments and how these activities contribute to meeting the RTG goals. Describe teaching requirements for the graduate trainees and the postdoctoral associates. Include a discussion of adequate mentoring for each of these activities. Discuss the proposed means of improving communication skills at all levels and of enhancing the professional development of trainees. Finally, include a discussion of how the RTG activities might affect students and postdoctoral associates not supported on RTG funds.
- Recruitment and Retention. Describe plans for the recruitment and retention of students and postdoctoral associates. Plans to motivate more students to pursue an education in the mathematical sciences should also be discussed. Specific provisions for the recruitment of U.S. citizens, nationals, and permanent residents as well as members of underrepresented groups must be included.
- Performance Assessment Plan. Each proposal should describe a plan to assess the progress towards the achievement of the RTG goals. This plan should describe the quantitative and qualitative information that will be used to monitor the RTG activities and determine necessary mid-course corrections.
- Organization and Management Plan. Provide evidence of past success in training undergraduates, graduate students, or postdocs, identifying names, degree dates, and subsequent placement (including the flow of undergraduates into graduate programs). Describe the plans, procedures, and personnel for the development and monitoring of all aspects of the project. In particular, discuss plans to ensure appropriate mentoring of students and postdoctoral associates, as well as the roles of the faculty involved. Provide evidence of faculty commitment necessary for the implementation of the proposed program. If the project involves international collaborations, industrial internships or arrangements with government laboratories, businesses, or other departments, then the proposal should document existing arrangements, any plans for expanding these arrangements, and the personnel involved in managing these linkages. If the proposal describes a joint project between two or more departments at the same institution, describe organization and management plans for the necessary interactions between the departments.
- Dissemination. The RTG program is intended to have a positive impact at the national level on the mathematical sciences community. Broad dissemination of RTG site activities, experiences, and insights is critical to achieve this. Each proposal must include a plan for this dissemination. It is important to disseminate both successful activities as well as information on less successful activities and mid-course corrections. A minimum form of dissemination is a web page devoted to an RTG project describing its activities. The department's web page should contain an easily seen link to its RTG page.
- Post-RTG plan. The RTG program is intended to help stimulate and implement permanent positive changes in education and training within the mathematical sciences in the U.S. Thus, it is critical that an RTG site adequately plan how to continue the pursuit of RTG goals when funding terminates.

Please note that per guidance in the GPG, the Project Description must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities. You can decide where to include this section within the Project Description.

(4) **Current and Pending Support**. This form should be provided for all persons listed as Senior Personnel (limited to 12 people).

(5) **Biographical Sketches**. The basic guidelines for biographical material apply; however, senior personnel are encouraged to include other activities or accomplishments relevant to the proposed activities. Senior personnel include the principal investigator; the co-principal investigators, if any have been designated; and other faculty/professionals who are anticipated to serve in the project. The number of biographical sketches is limited to 12.

(6) **Project Budget** . The proposal should include a detailed project budget and budget justification, as described in the GPG or NSF Grants.gov Application Guide. The budget justification should explain and justify major cost items and any unusual situations/inclusions and address the cost-effectiveness of the project.

Note that support of students and postdoctoral associates is in the form of stipends and should be entered as Participant Costs in Section F of the budget page.

The Budget Justification page must include a breakdown of numbers by types of participants and stipend levels for undergraduates, graduate trainees and postdoctoral associates. Project costs may also include such items as participant stipends, housing, meals, travel, tuition, or laboratory use and modest amounts for faculty salaries who administer the activities. Since expenditures cannot be funded beyond the last year of the project, the budget justification should also address how the project will enable the continued progress of individuals supported in the last year of the project.

Graduate Trainees: RTG's have been developed to allow graduate students significant time for research, course work, and related activities. RTG funds will provide $25,000 total per student for eleven months each year, with an allowance for tuition and fees of up to $10,500 per year per student. Stipends may be supplemented during non-teaching periods with support from other sources. RTG stipends cannot be used to pay students to fulfill teaching duties.

Undergraduate Students: The stipends are expected to be at least $1,000 per month for full-time research in the summer. Academic year stipends are limited to a maximum of $5,000 for the year, as undergraduates normally have significant demands on their time outside mathematical sciences. Exceptions to these rules must be justified in the proposal.

Postdoctoral Associates: The typical RTG postdoctoral associate will have a 3-year appointment, but this appointment should not go beyond the expiration date of the RTG award. An RTG postdoctoral appointment must not exceed 3 years. Postdoctoral associates should be paid at the normal full-time rate for the university. Funds can be requested in the proposal to pay up to a maximum of $25,000 for a full-time RTG postdoctoral associate. Postdoctoral associates who receive any support from RTG funds must be full-time postdoctoral associates when in residence and supported by RTG funds for at least half the academic year. Each RTG postdoctoral associate is expected to teach, on average, one course per term. In addition, the grant will provide summer support for two summers at the rate of $10,000 per summer. The grant can be charged for the fringe benefits on that portion of the stipend paid by the grant. The associate is expected to apply to an appropriate external funding agency for support for the third summer. Funding for the postdoctoral appointments should include a total of $9,000 for the three years to cover travel, equipment, and supplies.

Salaries: Faculty and staff salary may be requested only for the purpose of organization and management of the program. RTG is a program for student training; faculty and staff salary must be limited to a small fraction of the entire budget, with the vast majority of

funds directed at student and postdoctoral support. For this proposal's purpose, summer faculty teaching of courses and seminars that are exclusively targeted at RTG trainees may be considered as part of the organization and management of the program. No summer teaching by postdocs who are RTG supported is allowed. Graduate students can be hired in the summer and paid by RTG funds to teach courses and seminars exclusively targeted at RTG trainees; funds for this must be entered in line B.3, "Graduate Students."

(7) **Supplementary Documentation**.

In addition to those required by the GPG, RTG proposals must also contain the following supplementary documents:

(a) **Letters of Commitment.** Signed letters of commitment by the institution and other sources in support of the project should be included. If industrial or government laboratory internships are planned, letters indicating the willingness of the external organization and of individual external mentors (if known) to participate should also be included. These documents should be scanned and uploaded into the FastLane supplementary documentation section. Letters of endorsement are not permitted.

(b) **Trainee Data.** All RTG proposals must supply the following data unless such data is irrelevant to the proposed activities: (a) a list of Ph.D. recipients during the past five years (ten years for those seeking a second RTG award), along with each individual's citizenship status, baccalaureate institution, time-to-degree, post-Ph.D. placement, and thesis advisor; (b) the names of postdoctoral associates (including holders of named instructorships and 2- or 3-year terminal assistant professors) during the past five years (ten years for those seeking a second RTG award), their Ph.D. institutions, postdoctoral mentors, and post-appointment placements; (c) the dollar amount of funding by federal agencies for REUs, for graduate students, and for postdoctoral associates in each of the past five years (ten years for those seeking a second RTG award).

(c) **Quantitative Demographic Data.** Additional quantitative data must be furnished. Below is a listing of the row headings of a spreadsheet. Columns are to contain entries for different academic years. The PI can manufacture a spreadsheet using this information or can request by e-mail an electronic version of the spreadsheet from one of the cognizant Program Officers. Once the spreadsheet is completed, it can be pasted into a word processing document and then submitted via FastLane. (FastLane will not accept uploads in spreadsheet format.)

In these lists, "Math" means Mathematical Sciences, that is, Mathematics or Statistics. "US Citizen" means citizen, national, or permanent resident of the United States and its territories and possessions. A minority member is a U.S. Citizen from one of the following groups: Native American, Black, Hispanic, Pacific Islander (Hawaii, Guam, Samoa), persons with disabilities.

Inadequate data or data that is poorly presented will be negatively interpreted in the review process.

Submit a spreadsheet with the following rows.

1. Graduate Student Population
    - Total Number of Math Grad Students working with group
    - Number of Female Math Grad Students working with group
    - Number of Minority Math Grad Students working with group
    - Number of US Citizen Math Grad Students working with group
2. PhD Degrees Awarded
    - Total Number of Math PhDs granted in this area
    - Number of Math PhDs granted to Women in this area
    - Number of Math PhDs granted to Minorities in this area
    - Number of Math PhDs granted to US Citizens in this area
3. Math Postdoctoral Researchers
    - Total Number of Postdoctoral Fellows in this area
    - Number of Female Postdoctoral Fellows in this area
    - Number of Minority Postdoctoral Fellows in this area
    - Number of US Citizen Postdoctoral Fellows in this area

The columns should display data for each of the last five academic years or each of the last ten academic years if the group has had a previous RTG grant.

Note that the data required is for the group submitting the proposal, not for the entire department.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

C. Due Dates

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

    July 19, 2011

    June 05, 2012

    First Tuesday in June, Annually Thereafter

D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

    Detailed technical instructions regarding the technical aspects of 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 solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

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. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

- **For Proposals Submitted Via Grants.gov:**

  Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www07.grants.gov/applicants/app_help_reso.jsp. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

  Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in the GPG as Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://nsf.gov/bfa/dias/policy/merit_review/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Empowering the Nation Through Discovery and Innovation: NSF Strategic Plan for Fiscal Years (FY) 2011-2016*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the core strategies in support of NSF's mission 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 variety of learning perspectives.

Another core strategy in support of NSF's mission is broadening opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which 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.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (GPG Chapter II.C.2.d.i. contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including GPG Chapter II.C.2.d.i., prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
   a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

RTG proposals will be examined by external merit review. Reviewers will be asked to interpret the two basic NSF review criteria in the context of RTG. In addition, they will be asked to place emphasis on the following considerations:

- The appropriateness and value of the experience for the participants and the nature of participation in these activities;
  The quality of the environment in the department and the institution, including the record of the Principal Investigator and other senior personnel in the proposed activities, the facilities, and the professional development opportunities;

- The quality and appropriateness of the goals for the proposal and the assessment plan;
- Appropriateness of the recruitment and selection plan, including plans for involving participants from underrepresented groups at all levels, including students, investigators, etc.;
- Quality of plans for participant preparation and follow-through designed to promote continuation of participant interest and involvement in the mathematical sciences;
- The quality of the plans for managing the project, evaluating outcomes, and disseminating findings; and
- The appropriateness of the budget.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review 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.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's 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 Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

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 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.B. 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 (GC-1); * or Research Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions:

Stipend recipients under this award must be citizens, nationals, or permanent residents of the United States.

Funds provided for participant support may not be diverted by the awardee to other categories of expense without the prior written approval of the cognizant NSF Program Officer.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. 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 Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Annual project reports must list the undergraduate, graduate, and postdoctoral trainees supported by the award during the reporting period, together with the amount of stipend support received, the current educational status (still participating in RTG activities, no longer participating, graduated, etc.), and any post-RTG placement information (graduate study at XYZ university, postdoctoral work at UVW university, faculty position at RST university, employed at PQR Inc., etc.) for each trainee. The final project report must provide a cumulative list of this data for all trainees supported during the award period.

Project reports should also list the faculty members who participated in the RTG program during the reporting period, and their roles in the project.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Andrew D. Pollington, 1025 N, telephone: (703) 292-4878, email: adpollin@nsf.gov

- Victor Roytburd, 1025 N, telephone: (703) 292-8584, email: vroytbur@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "My NSF" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "My NSF" also is available on NSF's website at http://www.nsf.gov/mynsf/.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

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:	nsfpubs@nsf.gov

or telephone:	(703) 292-7827
• **To Locate NSF Employees:**	(703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and 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 proposer 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 or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; 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," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (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 the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Office of the General Counsel
National Science Foundation
Arlington, VA 22230