

# NSF 24-570: Research Training Groups in the Mathematical Sciences

## Program Solicitation

### Document Information

#### Document History

- **Posted:** May 2, 2024
- **Replaces:** [NSF 23-579](#)

[View the program page](#)



#### National Science Foundation

Directorate for Mathematical and Physical Sciences  
Division of Mathematical Sciences

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

August 13, 2024

Second Tuesday in August, Annually Thereafter



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## Important Information And Revision Notes

This program solicitation is a major revision and update to [NSF 23-579](#), "Research Training in the Mathematical Sciences (RTG)". Please read it carefully. The changes include, but are not limited to:

- Submissions are invited in all fields within Mathematical Sciences; especially encouraged in 2024-25 are those that align and integrate research in mathematics and statistics with emerging areas such as Artificial Intelligence, Biotechnology, Quantum Computing, and Cybersecurity.
- References are updated to align with 2022-26 NSF strategic plan.
- Inclusion of undergraduate students and postdoctoral researchers is made optional; the vertical integration requirement is removed.
- Trainee support amounts are aligned to be competitive with other NSF programs; budget caps are adjusted accordingly.
- The structure of the RTG postdoctoral traineeship is brought into a closer alignment with the Mathematical Sciences Postdoctoral Research Fellowship program.
- Post-RTG sustainability planning is emphasized, especially for renewals.
- The list of additional review criteria is streamlined.
- Program features and proposal requirements are strengthened, clarified, and aligned with the additional review criteria.
- Editorial changes have been made throughout to either clarify or enhance the intended meaning of a sentence or section.
- **Submissions that fail to adhere to the Proposal Preparation Instructions in Section V. A may be returned without review.**

Any proposal submitted in response to this solicitation should be submitted in accordance with the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) that is in effect for the relevant due date to which the proposal is being submitted. The NSF PAPPG is regularly revised and it is the responsibility of the proposer to ensure that the proposal meets the requirements specified in this solicitation and the applicable version of the PAPPG. Submitting a proposal prior to a specified deadline does not negate this requirement.

## 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 Research Training Groups in the Mathematical Sciences (RTG) program is to strengthen the nation's scientific competitiveness by increasing the number of well-prepared U.S. citizens, nationals, and permanent residents who pursue careers in the mathematical sciences, be they in academia, government, or industry. The RTG program supports efforts to improve graduate student research training and professional development through structured groups pursuing collaborative research. In addition to graduate student trainees working with faculty members, RTG supported research teams may, but are not required to, include undergraduate or postdoctoral trainees.

The RTG program invites submissions in all fields within mathematical sciences; especially encouraged in 2024-2025 are those that align and integrate research in mathematics and statistics with emerging areas such as Artificial Intelligence, Biotechnology, Quantum Computing, and Cybersecurity.

**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.*

- Marian Bocea, telephone: (703) 292-2595, email: [mbocea@nsf.gov](mailto:mbocea@nsf.gov)
- Lisa G. Davis, telephone: (703) 292-5190, email: [lgdavis@nsf.gov](mailto:lgdavis@nsf.gov)
- Jodi Mead, telephone: (703) 292-7212, email: [jmead@nsf.gov](mailto:jmead@nsf.gov)
- Swatee Naik, telephone: (703) 292-4876, email: [snaik@nsf.gov](mailto:snaik@nsf.gov)
- Andrew D. Pollington, telephone: (703) 292-4878, email: [adpollin@nsf.gov](mailto:adpollin@nsf.gov)
- Elizabeth Wilmer, telephone: (703) 292-7021, email: [ewilmer@nsf.gov](mailto:ewilmer@nsf.gov)
- Yong Zeng, telephone: (703) 292-7299, email: [yzen@nsf.gov](mailto:yzen@nsf.gov)

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

- 47.049 --- Mathematical and Physical Sciences

**Award Information**

**Anticipated Type of Award:** Standard Grant or Continuing Grant

**Estimated Number of Awards:** 3 to 10

The award size is \$400,000 to \$600,000 per year. See Section V.A.(5) for detailed budget information.

**Anticipated Funding Amount:** \$12,000,000

Subject to the availability of funds.

**Eligibility Information****Who May Submit Proposals:**

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) accredited in, and having a campus located in the US, acting on behalf of their faculty members.

- For proposals submitted by a single U.S.-based IHE, with or without subawards, it is required that the proposing IHE grant a doctoral degree in the mathematical sciences.
- For collaborative projects involving separately submitted collaborative proposals, the lead institution must grant a doctoral degree in mathematical sciences. Non-lead proposals may come from U.S.-based IHEs that do not grant a doctoral degree in mathematical sciences.

#### **Who May Serve as PI:**

No restrictions on Principal Investigators.

At least two and no more than eleven additional senior/key personnel are required for project activities and management.

For Collaborative projects, the lead institution must grant a doctoral degree in mathematical sciences.

**Participating trainees** (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.**

#### **Limit on Number of Proposals per Organization:**

There are no restrictions or limits.

#### **Limit on Number of Proposals per PI or co-PI:**

Because of the level of commitment expected, an individual cannot serve as PI or co-PI on more than one Research Training Groups proposal or award at a time. This rule does not apply to individuals listed as Other Senior/Key Personnel.

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

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

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
  - Full Proposals submitted via Research.gov: *NSF Proposal and Award Policies and Procedures Guide (PAPPG)* guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).
  - 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: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://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. submitting organization's local time):

August 13, 2024

Second Tuesday in August, Annually Thereafter

### **Proposal Review Information Criteria**

#### **Merit Review Criteria:**

National Science Board approved criteria. Additional merit review criteria 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.

## **I. Introduction**

Recognizing the need for more participation by U.S. citizens, nationals and permanent residents in the mathematical sciences and related disciplines, the Research Training Groups in the Mathematical Sciences (RTG) program seeks to build support and infrastructure along the graduate career pathway. It aims to enhance mathematical sciences research training in the United States ensuring a well-prepared and diverse community that meets the needs of the nation.

The RTG program aligns with the goals listed in the NSF's 2022-26 Strategic Plan [https://www.nsf.gov/news/special\\_reports/strategic\\_plan/](https://www.nsf.gov/news/special_reports/strategic_plan/). It specifically responds to [Strategic Goal 1](#) to empower STEM talent to fully participate in science and engineering, and Strategic Objective 1.2 to grow a diverse STEM workforce to advance the progress of science and technology. RTG aims to encourage and enable students to pursue careers in mathematics, statistics, engineering and science, to become the next cohort of research professionals, and to train successive generations.

Research training offered through the RTG program is expected to have significant positive impacts for the trainees through enhanced engagement and accelerated progress in research activities, experience in collaborative research, and close professional mentorship.

## **II. Program Description**

### **A. Goals**

The long-range goal of the Research Training Groups in the Mathematical Sciences (RTG) program is to strengthen the nation's scientific competitiveness by increasing the number of well-prepared U.S. citizens, nationals, and permanent residents who pursue careers in the mathematical sciences, be they in academia, government, or industry. A significant part of this goal is to increase the quality, the proportion, and the absolute number of U.S. advanced degree recipients in the mathematical sciences. The program's focus is on graduate training. In addition to faculty and graduate students, the teams may, but are not required to, include undergraduate and/or postdoctoral trainees.

The RTG program is intended to create sustainable programmatic capacity at institutions as well as help stimulate and implement permanent positive changes in research 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 NSF funding terminates. Proposals should provide appropriate documentation of institutional support for such efforts in the Facilities, Equipment, and Other Resources document.

## **B. Program Requirements**

An RTG project is required to be directed by a principal investigator, with at least two and no more than eleven additional senior personnel, who will collaborate in management and participate fully in the RTG activities. Because of the level of commitment expected from senior/key personnel, an individual cannot serve as PI or co-PI on more than one Research Training Groups proposal or award at a time.

## **C. Key Features of an RTG Project**

- Project team consisting of collaborating faculty with a history of research accomplishments and mentoring.
- Research program anchored in a coherent theme in the mathematical sciences aligned with the project team's research interests.
- Research programs addressing the training and workforce development at the interface of mathematics and the following emerging areas are particularly welcome:
  - theoretical foundations and practical applications of artificial intelligence;
  - biotechnology empowered by mathematical and biological principles;
  - quantum algorithms, quantum information theory, or quantum cryptography;
  - cybersecurity, such as mathematical techniques for safeguarding digital assets, detecting and mitigating cyber threats, and ensuring the integrity and confidentiality of information systems.
- Plans for recruitment, selection, mentoring, and retention of participants (trainees), 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.
- Development of professional and personal skills of the trainees, such as communication, teamwork, teaching, mentoring, and leadership.
- Institutional commitment to a supportive environment for research and education.
- Post-RTG sustainability plan to continue the pursuit of RTG goals when funding discontinues.
- Overall administrative and organizational structure that ensures effective management of the project resources.

## **D. Trainees**

To maximize the number of individuals benefiting from RTG activities, project teams are expected to make available (within the capacity and budget limitations of the award) RTG program elements to students and postdocs who are not funded by the program.

**Graduate students.** Graduate trainees form an essential component of the RTG teams. Their participation should result in broad and deep graduate education, enhanced research training, and a comprehensive professional development. They are expected to have substantial mentored professional experiences to prepare them for successful careers in the mathematical sciences and in other professions in which expertise in the mathematical sciences plays an important role. Examples of this professional experience could include:

- a minimum of two terms of supervised teaching, preferably with one term of more independent teaching in which the student has substantial responsibility for a class, or
- a minimum of two terms of a supervised industry/laboratory internship.

Training elements 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 awards are intended to allow graduate students significant time for research, course work, and related activities. A graduate trainee can receive up to three academic years and two summer terms worth of non-teaching support from an RTG award. Minimally, the support should include one or more full academic terms (i.e., quarter, trimester, semester, summer term) but the supported terms need not be consecutive. RTG stipends cannot be used to pay students to fulfill teaching duties or for internships.

**Undergraduate Experience.** If an RTG team includes undergraduate trainees, the term "research experiences" for undergraduates should encompass all activities that involve undergraduates in discovery and generate appreciation of and excitement about research in the mathematical sciences. An undergraduate research experience does not have to result in the publication of a paper. Examples of research experiences include faculty-directed projects, either during the academic year or the summer, or participation in research teams with graduate students and/or postdoctoral associates. 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 formats. In all cases, it is expected that the participating undergraduates receive mentoring to stimulate their further interest in the mathematical sciences.

**Postdoctoral Training.** If an RTG team includes postdoctoral associates as trainees, their training is expected to result in a better preparation for future careers, including a well-defined independent research program, well-developed communication skills, a broad perspective of the field, and the ability to mentor. The program should aim to 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 trainee's research interests.

An RTG postdoctoral trainee is expected to be a recent recipient of a doctoral degree, typically held not more than three years as of January 1 of the year in which the appointment begins. Any exceptions made to this restriction should be well-justified in the annual reports.

The typical RTG postdoctoral appointment is for three years. A person is eligible for only one such appointment. An RTG Fellow will have the following two options for holding the fellowship:

1. The Research Fellowship option provides full-time support for any eighteen academic-year months in a three-year period, in intervals not shorter than three consecutive months;
2. The Research Instructorship option provides a combination of full-time and half-time support over a period of three academic years. This option allows the Fellow the opportunity to gain teaching experience during the two half-time academic years.

It is expected that each postdoctoral trainee will submit a research proposal to a funding agency at some time during the course of the postdoctoral appointment. Mentoring to help ensure all postdoctoral trainees become successful researchers, communicators, and mentors is a critical element of an RTG postdoctoral program.

### **E. Budget**

Proposals may include support requests for student and postdoctoral trainees under participant support, 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 included with appropriate justification. Faculty salary is limited to that needed for the purpose of organizing and managing the program. On average, projects that do not include undergraduate students or postdoctoral trainees are expected to have a budget closer to \$400,000 per year, while those which include all stages of traineeships may request up to \$600,000 per year. See more details in the Budget subsection of the Proposal Preparation section below.

## **III. Award Information**

In determining the number and size of awards, NSF considers the advice of reviewers and availability of funds. Estimated program budget, number of awards and average award size/duration are as follows but are subject to the availability of funds:

Budget: \$12,000,000

Number of Awards: 3 to 10

Award size: \$400,000 to \$600,000 per year

Duration: 3 to 5 years

## **IV. Eligibility Information**

### **Who May Submit Proposals:**

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) accredited in, and having a campus located in the US, acting on behalf of their faculty members.
  - For proposals submitted by a single U.S.-based IHE, with or without subawards, it is required that the proposing IHE grant a doctoral degree in the mathematical sciences.
  - For collaborative projects involving separately submitted collaborative proposals, the lead institution must grant a doctoral degree in mathematical sciences. Non-lead proposals may come from U.S.-based IHEs that do not grant a doctoral degree in mathematical sciences.

### **Who May Serve as PI:**

No restrictions on Principal Investigators.

At least two and no more than eleven additional senior/key personnel are required for project activities and management.

For Collaborative projects, the lead institution must grant a doctoral degree in mathematical sciences.

**Participating trainees** (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.**

### **Limit on Number of Proposals per Organization:**

There are no restrictions or limits.

### **Limit on Number of Proposals per PI or co-PI:**

Because of the level of commitment expected, an individual cannot serve as PI or co-PI on more than one Research Training Groups proposal or award at a time. This rule does not apply to individuals listed as Other Senior/Key Personnel.

## **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 Research.gov or Grants.gov.



- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg). Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov). The Prepare New Proposal setup will prompt you for the program solicitation number.
- 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: ([https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://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) 292-8134 or by e-mail from [nsfpubs@nsf.gov](mailto: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 Research.gov. PAPPG Chapter II.E.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.D.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

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

(1) **Proposal Set-Up.** Select "Prepare New Full Proposal" in Research.gov. Search for and select this solicitation title in step one of the full proposal wizards. Research.gov will prepopulate the "Where to Apply" in step two with the [Workforce Program in Mathematical Sciences](#). In step three, select "Research" as the proposal type. In step four, enter a title that begins with the label "RTG:".

(2) **Where to Apply.** After completing the initial proposal set-up, **select secondary unit(s) of consideration in the proposal details section.** Select as the secondary unit(s) of consideration one or more of the disciplinary research programs of interest within the Division of Mathematical Sciences. Such programs should be listed in the order of priority. See the [DMS Programs page](#) for a list of programs.

(3) **Manage Senior/Key Personnel:** In addition to the PI, list at least 2 and no more than 11 senior/key personnel. The following required documents must be provided for these individuals: Biographical Sketches, Current and Pending (Other) Support, Collaborators and Other Affiliations (COA) information, and Synergistic Activities.

#### (4) **Project Summary**

The overview should include the following information: (i) names of the institutions/organizations involved, (ii) the types of trainees (undergraduate, graduate, postdoc) included in the project, and (iii) the anticipated total numbers of (each type of) trainees within the duration of the award.

Under Intellectual Merit include the project's research focus area(s), and alignment with NSF priorities if applicable. In Broader Impacts briefly describe the proposed activities, objectives, and impact.

#### (5) **Project Description**

**All RTG proposals must include the following sections in the order below and with titles as indicated.**

- **Introduction.** Discuss the vision, scope, goals or objectives, and the anticipated impact of the program at the submitting institution(s) and beyond.
- **Senior Personnel** (in addition to the PI, list at least 2 and no more than 11 other). Provide each individual's name, project role, and area(s) of expertise. These individuals must be the same ones designated as Senior/Key Personnel on the proposal and for whom Biographical Sketches, Current and Pending (Other) Support, Collaborators and Other Affiliations (COA) information, and Synergistic Activities are required.
- **Proposed project.**
  - Describe the overarching theme, research projects, and alignment with the group's research strengths.
  - Discuss the proposed mechanisms for research training of graduate students and for trainees at any other levels included in the proposal.
  - Identify any new activities (courses, seminars, workshops, special programs, etc.) that will result from RTG support.
  - Describe professional development opportunities, including any industrial internships or arrangements with government laboratories, businesses, or other academic departments.
  - Describe the teaching requirements for trainees, if any, and related supervision plans.
  - Discuss the proposed means of improving communication skills of trainees.
  - Finally, include a discussion of how the RTG activities might affect students and postdocs not supported by RTG funds.
- **Recruitment and Retention.** Describe plans for the recruitment and retention of trainees, with specific provisions for the recruitment of U.S. citizens, nationals, and permanent residents as well as members of underrepresented groups. Describe any diversity goals, broadening participation strategies, and successes of any existing recruiting or retention programs that will be leveraged through the project. Explain how these efforts will be coordinated with the admissions policies and procedures of the department(s) and university.
- **Trainee Data.** Describe the experience and past success of the senior/key personnel in research, education, and training graduate students (also undergraduates and/or postdocs, if included as trainees). Supply in a tabular form a list of Ph.D. recipients advised, along with their baccalaureate institutions, time-to-degree, post-Ph.D. placement, and thesis advisors' names. For new RTG proposals, data should be included for the past five years. For a renewal of an existing RTG grant, data should be included for the past ten years. If some members of the group have trained graduate students at another institution during the past five (or ten) years, it is allowable to include these, as long as the relevant institution in each case is clearly indicated in the data. (This data is requested for the group submitting the proposal, not for the entire department.)
- **Broader Impacts.** The Project Description must contain, as a separate section labeled 'Broader Impacts' within the narrative, a discussion of how both the training components and the research efforts will contribute more broadly to the achievement of societally relevant outcomes. Such outcomes in the context of RTG include, but are not limited to: development of a diverse, globally competitive mathematical sciences workforce; participation of underrepresented groups; increased partnerships and collaborations between academia, industry, and others.
- **Performance Assessment / Project Evaluation Plan.** Each proposal must clearly state the project's goals and describe a plan to assess the progress towards achieving those goals. The assessment plan should describe the quantitative and qualitative information that will be used to monitor the RTG activities and a plan for mid-course corrections as needed.
- **Organization and Management Plan.** The management plan must describe actions that will be taken to achieve the goals set in the assessment/evaluation plan and the faculty commitment necessary for the implementation of the proposed program.
  - Describe the plans, procedures, and personnel for the development and monitoring of all aspects of the project.
  - Discuss plans to ensure appropriate mentoring of trainees, as well as the roles of the faculty involved.

- If the project involves international collaborations, industrial internships, or arrangements with government laboratories, businesses, or other departments, document any existing arrangements, plans expanding these or creating new arrangements, and the personnel involved in managing these linkages.
- If the proposal includes a joint project between two or more departments at the same institution, describe organization and management plans for the necessary interactions between the departments.

Appropriate letters of collaboration from external organizations should be included in the supplementary documents, and submitting institution's commitments should be described in Facilities, Equipment, and Resources as required by the PAPPG. See below for a list of required supplementary documents.

- **Dissemination.** A web page devoted to the RTG project should be created and maintained for a broad dissemination of RTG site activities, experiences, and insights. This page should disseminate successful activities as well as information on less successful activities and mid-course corrections. The department's web page should contain an easily seen link to its RTG page.
- **Post-RTG Sustainability plan.** It is critical that an RTG site adequately plan to continue the pursuit of RTG goals when NSF funding terminates. Moreover, since expenditures cannot be funded beyond the last year of the project, the plan should also address mechanisms to enable the continued progress of individuals supported in the last year of the project. Projects seeking a renewal of RTG support should clearly reference the previous post-RTG plan, report on its implementation, and include a strong justification for the need for the additional support.
- **Results from Prior NSF Support.** Any PI or co-PI who has received NSF funding (including any current funding) from an award with an end date in the past five years must provide information on the prior award, major achievements, and relevance to the proposed RTG project. For further information see Chapter II.D.2.d(iii) of the PAPPG.

(6) **Project Budget and Budget Justification.** The proposal should include a detailed project budget and budget justification. The budget justification should explain and justify major cost items and any unusual situations/inclusions and address the cost-effectiveness of the project. On average, projects that do not include undergraduate students or postdoctoral trainees are expected to have a budget closer to \$400,000 per year, while those which include all stages of traineeships may request up to \$600,000 per year.

#### **Trainees, Participant Costs**

**Note that support of all trainees - students and postdoctoral- is in the form of stipends and allowances for fringe, travel, tuition, etc., and should be entered as Participant Support Costs in Section F of the budget page.** The Budget Justification page must include an explanation for all requested funds for trainees and a breakdown of costs by types (undergraduate, graduate, postdoc). For each type of trainee/participant, report the total support in each year and how it is calculated: number of trainees supported, duration of the support (semester, academic year, summer, etc.), and stipend/allowance for that duration. These are subject to caps described below.

**Graduate Trainees:** A graduate trainee can receive up to three academic years and two summer terms worth of non-teaching support from an RTG award. Minimally, the support should include one or more full academic terms (i.e., quarter, trimester, semester, summer term) but the supported terms need not be consecutive.

RTG funds will provide \$37,000 total stipend per student each year, with an additional allowance for fringe benefits, tuition, and fees of up to \$16,000 per year per student, both prorated appropriately for partial year support.

**Undergraduate Trainees** (if included): The stipends are expected to be at least \$700 per week 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 through academic requirements outside mathematical sciences. Exceptions to these rules must be justified in the proposal.

**Postdoctoral Trainees** (if included): The duration of a typical RTG postdoctoral appointment is for three years, during which full support may be requested for up to 21 months (18 academic year months plus 3 summer months).

The total Fellowship amount is \$147,000 and consists of two separate types of payments.

1. A monthly stipend of \$5,500 for full-time support (or \$2,750 for half-time support).
2. An allowance of \$1,500 per month for full-time support (or \$750 for half-time support) for
  - expenses directly related to the conduct of the research, such as materials and supplies, subscription fees and recovery costs for databases, travel, and publication expenses, and/or
  - expenses in support of fringe benefits, including but not limited to health insurance provided through either a group plan offered by the host organization or an individual plan secured by the Fellow, dental and/or vision insurance, disability insurance, retirement savings, dependent care, and moving expenses.

**Salaries:** Faculty and staff salary may be requested only for the purpose of organization and management of the program. RTG is a program for trainees; faculty and staff salary must be limited to a small fraction of the entire budget, with the bulk of funds in the participant support for trainees. 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.

**Other:** Support may be requested for visitors, consultant services, travel, conferences, and workshops. Any such items that are deemed essential to the success of the proposed activities should include appropriate justification.

(7) **Facilities, Equipment and Other Resources.** As an RTG award provides only partial support for participating graduate students and postdoctoral associates, this section should describe the internal and external resources that will be provided. The description should be narrative in nature and must not include any quantifiable financial information.

(8) **Supplementary Documentation.**

**(a) Institutional Letter of Support.** One support letter, up to two pages in length and submitted as a Supplementary Document, is required from an appropriate senior university administrator at the lead institution. It should describe institutional support for the RTG program and how successful programmatic elements will be sustained after award closure. The letter should address mechanisms to enable the continued progress of individuals supported in the last year of the project.

**(b) Letters of Collaboration.** Signed letters of collaboration by the institution and other sources in support of the project should be uploaded into the supplementary documentation section. 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.

The letters of collaboration are meant to explain how the institution and the collaborating sites will provide an environment that supports the proposed research and training activities. It is acceptable for a letter of collaboration to provide a short, bulleted list of specific activities supported by the collaboration and listed in the proposal; however, each letter is limited to one page. See the PAPPG for a suggested format for letters of collaboration.

Letters of recommendation or endorsement are not permitted and must not be included.

**(c) Mentoring plan.** As required by the PAPPG, in no more than one page, this plan must describe the mentoring that will be provided to all graduate students and postdoctoral scholars supported by the

project. The Mentoring Plan should be uploaded in the Mentoring Plan section in Research.gov. Note that since support for trainees, including graduate and postdoctoral trainees, is entered as participant support costs on the proposal budget, the proposal may pass the Research.gov validation check without a Mentoring Plan, however, in that case the proposal will be considered incomplete.

## **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. submitting organization's local time):

August 13, 2024

Second Tuesday in August, Annually Thereafter

## **D. Research.gov/Grants.gov Requirements**

### **For Proposals Submitted Via Research.gov:**

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at:

[https://www.research.gov/research-portal/appmanager/base/desktop?](https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationa)

[\\_nfpb=true&\\_pageLabel=research\\_node\\_display&\\_nodePath=/researchGov/Service/Desktop/ProposalPreparationa](https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationa)

For Research.gov user support, call the Research.gov Help Desk at 1-800-381-1532 or e-mail [rgov@nsf.gov](mailto:rgov@nsf.gov).

The Research.gov Help Desk answers general technical questions related to the use of the Research.gov 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.

### **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: <https://www.grants.gov/web/grants/applicants.html>. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical 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](mailto: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 Research.gov for further processing.

The NSF [Grants.gov Proposal Processing in Research.gov informational page](#) provides submission guidance to applicants and links to helpful resources including the NSF [Grants.gov Application Guide](#), [Grants.gov Proposal Processing in Research.gov how-to guide](#), and [Grants.gov Submitted Proposals Frequently Asked Questions](#). Grants.gov proposals must pass all NSF pre-check and post-check validations in order to be accepted by Research.gov at NSF.

When submitting via Grants.gov, NSF strongly recommends applicants initiate proposal submission at least five business days in advance of a deadline to allow adequate time to address NSF compliance errors and resubmissions by 5:00 p.m. submitting organization's local time on the deadline. Please note that some errors cannot be corrected in Grants.gov. Once a proposal passes pre-checks but fails any post-check, an applicant can only correct and submit the in-progress proposal in Research.gov.

Proposers that submitted via Research.gov may use Research.gov to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

## **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 PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: [https://www.nsf.gov/bfa/dias/policy/merit\\_review/](https://www.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 *Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026*. 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 strategic objectives 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 must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of 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. (PAPPG Chapter II.D.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 PAPPG Chapter II.D.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 other underrepresented groups 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 and Sharing Plan and the Mentoring Plan, as appropriate.

#### **Additional Solicitation Specific Review Criteria**

RTG proposals will receive 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 comment on the following aspects:

- Alignment of the proposed program with the project goals stated in the proposal;
- Research accomplishments of the project team, the strength of the proposed research program and its alignment with the team's expertise;
- The project team's mentoring experience and record;
- The recruitment and selection plan for trainees, including broadening participation strategies;
- Professional development plans for the trainees;
- The commitments supported by the institutional letter, the Facilities & Resources document, and if applicable, letters of collaboration;
- Assessment/Evaluation plans;
- Mentoring Plan for graduate students (and for postdocs, if applicable);
- Post-RTG sustainability plan and institutional commitment to continue the pursuit of RTG goals when funding terminates; in case of renewals, a clear explanation of the previous post-RTG plan, reporting on its implementation, and a strong justification for continued funding;
- The overall quality of the plans for managing the project.

#### **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 evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be



completed and submitted by each reviewer and/or panel. 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 strives to be able to tell proposers whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new recipients may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements or the Division of Acquisition and Cooperative Support for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform 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.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, 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.

## **VII. Award Administration Information**

### **A. Notification of the Award**

Notification of the award is made to *the submitting organization* by an NSF Grants and Agreements Officer. 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 notice, 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 notice; (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 notice. 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 [https://www.nsf.gov/awards/managing/award\\_conditions.jsp?org=NSF](https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF). Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from [nsfpubs@nsf.gov](mailto: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 *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

### **Administrative and National Policy Requirements**

## **Build America, Buy America**

As expressed in Executive Order 14005, [Ensuring the Future is Made in All of America by All of America's Workers](#) (86 FR 7475), it is the policy of the executive branch to use terms and conditions of Federal financial assistance awards to maximize, consistent with law, the use of goods, products, and materials produced in, and services offered in, the United States.

Consistent with the requirements of the Build America, Buy America Act (Pub. L. 117-58, Division G, Title IX, Subtitle A, November 15, 2021), no funding made available through this funding opportunity may be obligated for an award unless all iron, steel, manufactured products, and construction materials used in the project are produced in the United States. For additional information, visit NSF's [Build America, Buy America](#) webpage.

### **Special Award Conditions:**

Stipend recipients under this award must be citizens, nationals, or permanent residents of the United States; this restriction does not apply to PIs or other Senior/Key Personnel.

Funds provided for participant support may not be diverted by the recipient 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 no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final annual project report, and a project outcomes report for the general public.

Failure to provide the required annual or final annual 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 annual 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 Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

### **Additional Reporting Requirements**

Annual project reports must list:

1. the faculty members who participated in the RTG program during the reporting period, and their roles in the project; and
2. all 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 annual report must provide a cumulative list of this data for all trainees supported during the award period.

## 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:

- Marian Bocea, telephone: (703) 292-2595, email: [mbocea@nsf.gov](mailto:mbocea@nsf.gov)
- Lisa G. Davis, telephone: (703) 292-5190, email: [lgdavis@nsf.gov](mailto:lgdavis@nsf.gov)
- Jodi Mead, telephone: (703) 292-7212, email: [jmead@nsf.gov](mailto:jmead@nsf.gov)
- Swatee Naik, telephone: (703) 292-4876, email: [snaik@nsf.gov](mailto:snaik@nsf.gov)
- Andrew D. Pollington, telephone: (703) 292-4878, email: [adpollin@nsf.gov](mailto:adpollin@nsf.gov)
- Elizabeth Wilmer, telephone: (703) 292-7021, email: [ewilmer@nsf.gov](mailto:ewilmer@nsf.gov)
- Yong Zeng, telephone: (703) 292-7299, email: [yzeng@nsf.gov](mailto:yzeng@nsf.gov)

For questions related to the use of NSF systems contact:

- NSF Help Desk: 1-800-381-1532
- Research.gov Help Desk e-mail: [rgov@nsf.gov](mailto:rgov@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](mailto: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, "NSF Update" 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. "NSF Update" also is available on [NSF's website](#).

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at <https://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 (FASED)* provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.F.7 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 <https://www.nsf.gov>

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **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](mailto:nsfpubs@nsf.gov)
  - or telephone: (703) 292-8134
- **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 proposers 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 proposers 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 [System of Record Notices, NSF-50](#), "Principal Investigator/Proposal File and Associated Records," and [NSF-51](#), "Reviewer/Proposal File and

Associated Records." 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  
Policy Office, Division of Institution and Award Support  
Office of Budget, Finance, and Award Management  
National Science Foundation  
Alexandria, VA 22314

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[Vulnerability disclosure](#) | [Inspector General](#) | [Privacy](#) | [FOIA](#) | [No FEAR Act](#) | [USA.gov](#) | [Accessibility](#) |  
[Plain language](#) |



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Tel: [\(703\) 292-5111](tel:7032925111),