Partnerships for Research Innovation in the Mathematical Sciences (PRIMES)

PROGRAM SOLICITATION
NSF 24-517

REPLACES DOCUMENT(S):
NSF 23-560

National Science Foundation
Directorate for Mathematical and Physical Sciences
Division of Mathematical Sciences

Full Proposal Target Date(s):

March 11, 2024

August 21, 2024

Third Wednesday in August, Annually Thereafter

February 12, 2025

Second Wednesday in February, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

The changes from NSF 23-560 are as follows:

- The co-PI requirement for the DMS supported Mathematical Sciences Research Institute has been removed and replaced by a letter of collaboration;
- There are now two target dates per year. In 2024, they are in March and August. Starting in 2025, one is in February and the other one is in August. These dates have been selected to better accommodate awards starting in the Fall and Spring semester, respectively;
- The language regarding which institutions are eligible to submit proposals has been updated.

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:

Partnerships for Research Innovation in the Mathematical Sciences (PRIMES)

Synopsis of Program:

The NSF Division of Mathematical Sciences' Partnerships for Research Innovation in the Mathematical Sciences program aims to enhance partnerships between minority-serving institutions and DMS-supported Mathematical Sciences Research Institutes. The activity seeks to boost the participation of members of groups underrepresented in the mathematical sciences through their increased involvement in research programs at the institutes.

Cognizant Program Officer(s):

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: 4 to 8

In FY 2024 awards are anticipated to be up to $400,000 for two years.

Anticipated Funding Amount: $2,000,000

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- PRIMES proposals may only be submitted by minority-serving Institutions (MSI) of Higher Education (IHE) in the United States that award degrees in the Mathematical Sciences that are not currently classified as a Doctoral University with "Very High Research Activity" (R1 institutions) according to the latest Carnegie Classification update (e.g., see https://carnegieclassifications.iu.edu/ for the 2021 Carnegie Classification update). For the purposes of this solicitation, minority-serving institutions are as defined by the Department of Education (https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html). Eligibility as a minority-serving institution is available in this link and also be determined by reference to the Integrated Postsecondary Education Data System (IPEDS) of the US Department of Education National Center for Education Statistics (http://nces.ed.gov/ipeds/).

    Note that 2-year and 4-year Associate degree-granting IHEs are not eligible to submit a proposal under this solicitation, except where an established degree-granting partnership exists with an eligible institution. However, a 2-year and 4-year Associate degree-granting IHE may partner with a leading Minority-Serving Institution (MSI).

    Eligible Partners

    Eligible partners include DMS-supported Mathematical Sciences Research Institutes (https://mathinstitutes.org/) as listed below:

    - American Institute of Mathematics (AIM)
    - Institute for Advanced Studies (IAS)
    - Institute for Computational and Experimental Research in Mathematics (ICERM)
    - Institute for Mathematical and Statistical Innovation (IMSI)
    - Institute for Pure and Applied Mathematics (IPAM)
    - Simons Laufer Mathematical Sciences Institute (SLMath) (previously MSRI)

Who May Serve as PI:

The Principal Investigator must hold a faculty appointment at the MSI submitting the PRIMES proposal. Funding of any partnering DMS-supported Mathematical Sciences Research Institutes, if applicable, must be requested via subawards.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or co-PI: 1

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.
    - 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).

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 Target Date(s)**:

    March 11, 2024

    August 21, 2024

    Third Wednesday in August, Annually Thereafter

    February 12, 2025

    Second Wednesday in February, 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:

Standard NSF award conditions apply.

Reporting Requirements:

Standard NSF reporting requirements apply.

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I. INTRODUCTION

The National Science Foundation's vision of "a Nation that leads the world in science and engineering research and innovation, to the benefit of all, without barriers to participation" encompasses core values of research excellence, diversity and inclusion, and collaboration, as described in NSF's strategic plan (https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf22068). The NSF Division of Mathematical Sciences (DMS) supports a broad interdisciplinary research community. Advancing the cutting-edge research pursued by the mathematical sciences community requires engaging the nation's human talent and resources in their entirety and developing and supporting the diverse mathematical sciences workforce that is critical for continued progress in scientific discovery.

In the U.S., minority-serving colleges and universities are leading producers of degrees in mathematics-related fields that are awarded to persons from historically underrepresented groups in STEM fields. Partnerships with DMS-supported Mathematical Sciences Research Institutes (https://mathinstitutes.org/), which foster cutting edge research collaborations within the mathematical sciences and at the interface of the mathematical sciences and other disciplines, provide opportunities for students, postdoctoral fellows, and junior researchers to interact with world-class leading researchers, and offer a singular opportunity for growing the contributions that minority-serving institutions and researchers make to the U.S. mathematical sciences enterprise.

II. PROGRAM DESCRIPTION

The DMS Partnerships for Research Innovation in the Mathematical Sciences (PRIMES) program aims to enable, build, and grow formal partnerships between minority-serving institutions (MSI) and DMS-supported research institutes. The PRIMES activity increases diversity through building and growing research capacity and output in the mathematical sciences at minority serving institutions by supporting members of a math/stat department at an MSI through year-long research leaves, during which time participants visit one of the DMS-supported research institutes (for a thematic program, for workshops of any length, or for a long-term stay).

A PRIMES award is a two-year grant that will defray the costs of: (a) a one-year replacement at the MSI for each faculty member participating, (b) the institute's cost of the faculty participation in the institute program, (c) up to 2-months salary per year for the participating faculty member, as well as (d) the costs of additional travel and lodging for the faculty member. The activities are to be scheduled so that the faculty member first participates in programs at the research institute and subsequently has an opportunity to complete and write up resulting work. Additionally, during the second year of the award, the faculty member receives support for travel to work with collaborators as well as for up to 2-months salary. The award also allows the possibility to defray the costs for a postdoctoral associate, graduate student, or undergraduate student from the MSI to participate in (parts of) the programs at the research institute.

A PRIMES proposal will encompass a research thrust that involves typically one faculty member from the MSI and participation in programs at the partnering research institute. Collaborative projects involving multiple faculty members from one or two MSIs or for partnering with one or two research institutes will be considered, provided there is a sound scientific rationale for such collaboration. Successful PRIMES projects are expected to include a vision for the partnership that simultaneously promotes inclusiveness and research excellence; the proposed research should be aligned with research supported by DMS and in line with the thematic program at the research institute the faculty member plans to attend. Successful PRIMES projects should also address how the award will advance research capacity and output at the MSI as well as the potential, if relevant, to involve undergraduate students, graduate students, or postdoctoral associates in research. Successful PRIMES projects should further address how the award will contribute to the overarching goal of increasing workforce diversity in the mathematical sciences. Importantly, anticipated challenges and expected outcomes toward increasing diversity and research output must be identified and addressed in PRIMES proposals.

III. AWARD INFORMATION

The estimated number of awards in FY2024 will be 4 to 8. The total anticipated funding amount in FY2024 is approximately $2,000,000, contingent upon availability of funding. Awards are expected to be up to $400,000 for 2 years. Estimated program budget, number of awards and average award size/duration are subject to the availability of funds and receipt of competitive proposals.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- PRIMES proposals may only be submitted by minority-serving Institutions (MSI) of Higher Education (IHE) in the United States that award degrees in the Mathematical Sciences that are not currently classified as a Doctoral University with "Very High Research Activity" (R1 institutions) according to the latest Carnegie Classification update (e.g., see https://carnegieclassifications.iu.edu/ for the 2021 Carnegie Classification update). For the purposes of this solicitation, minority-serving institutions are as defined by the Department of Education (https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html). Eligibility as a minority-serving institution is available in this link and may also be determined by reference to the Integrated Postsecondary Education Data System (IPEDS) of the US Department of Education National Center for Education Statistics (http://nces.ed.gov/ipeds/).

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  - Simons Laufer Mathematical Sciences Institute (SLMath) (previously MSRI)

Who May Serve as PI:

The Principal Investigator must hold a faculty appointment at the MSI submitting the PRIMES proposal. Funding of any partnering DMS-supported Mathematical Sciences Research Institutes, if applicable, must be requested via subawards.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or co-PI: 1

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. 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. 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). 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.

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.

In addition to the guidance in the PAPPG and NSF Grants.gov Application Guide, the following items should be included and/or addressed in the proposal:

The title of the proposed project should begin with "PRIMES:".

Project Description: In addition to the description of the proposed research, and a separate section labeled "Broader Impacts", the proposal should contain a section on the appropriateness and potential impact of participating in the activities at the research institute and a section that addresses how the proposed activity will contribute to the goal of increasing the participation of members of historically underrepresented groups in mathematical sciences.

References Cited: List only references cited in the Project Description. See the PAPPG for format instructions.

Facilities, Equipment and Other Resources: This section should be prepared in accordance with the PAPPG and should provide an aggregated description of the resources that the organization will provide to the project, should it be funded. For purposes of this solicitation, resources such as space, faculty release time, faculty and staff positions, capital equipment, access to existing facilities, collaborations, and support for outreach efforts should be addressed, for both the lead institution and the partnering institutes.

Supplementary Documentation: Letter(s) of Collaboration from Partner (Limit of 2 pages). The director or designated staff of the partnering institutes must provide a detailed letter of collaboration that includes the intellectual role and the nature of support that will be provided by the institute to the faculty and, if appropriate, to the postdoctoral fellows and students.

Institutional Support from Lead Institution (Limit of 2 pages): A university official (Department Chair and/or Dean) from the lead institution must provide a letter describing the support that will be provided by the institution for the proposed activities. This should include an explicit statement that the PI will be granted a full year leave during the first year of the award. This should be narrative in nature and must not include any quantifiable financial information.

Please note that letters of recommendation for the PI or other letters of support for the project are not permitted.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

C. Due Dates

- **Full Proposal Target Date(s)**:

    March 11, 2024

    August 21, 2024

    Third Wednesday in August, Annually Thereafter

    February 12, 2025

    Second Wednesday in February, 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?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationandSubmission.html. For Research.gov user support, call the Research.gov Help Desk at 1-800-381-1532 or e-mail 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. 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/.

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 Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

The PRIMES proposals will also be evaluated on the following:

- the likely impact of the proposed project on the institutional research environment, especially in terms of enhancing research capabilities,
- the appropriateness of the institute activity with respect to the faculty participant's research program,
- the impact on the career of the faculty participant, and
- impact on the ability of the involved department to better prepare students for entry into advanced-degree programs and/or careers in science and engineering, including any provisions that will include the participation of the full spectrum of diverse talent in STEM.

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. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 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 *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.

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.

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 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 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.

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:

- Adriana Salerno, telephone: (703) 292-2271, email: PRIMES@nsf.gov

Joanna Kania-Bartoszynska, telephone: (703) 292-4881, email: PRIMES@nsf.gov

- Stefaan G. De Winter, telephone: (703) 292-2599, email: PRIMES@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

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, "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.

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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.

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

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- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314

- **For General Information** (703) 292-5111
  (NSF Information Center)**:**

- **TDD (for the hearing-impaired):** (703) 292-5090

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
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