Pan-American Advanced Studies Institutes Program (PASI)

PROGRAM SOLICITATION
NSF 12-535

REPLACES DOCUMENT(S):
NSF 10-517

National Science Foundation

Office of International Science and Engineering

Directorate for Mathematical & Physical Sciences

Directorate for Engineering

Directorate for Biological Sciences

Directorate for Geosciences

Directorate for Computer & Information Science & Engineering

Office of Basic Energy Science

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

April 24, 2012

IMPORTANT INFORMATION AND REVISION NOTES

Revision Summary

1. Recommended duration of a PASI: Ten to twenty-one days duration.
2. **Indirect Costs:** Please note an important change to the treatment of indirect costs that has been incorporated into the PASI program solicitation. To ensure consistency with NSF-wide policies, proposals submitted to this program solicitation are subject to the awardee's current Federally negotiated indirect cost agreement.
3. Allows assignment of 10% of total participant support costs for administrative related expenses.
4. Renewal PASIs are not allowed. A past PASI awardee may submit another PASI proposal on an entirely different topic; however, in case of comparable technically excellent proposals between first time applicants and repeat applicants, priority will be given to new applicants.
5. Additional information on potential topics for PASIs is provided, including topics related to sustainable development.
6. More details on the required evaluation plan have been added.

Important Reminders

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), NSF 11-1, was issued on October 1, 2010 and is effective for proposals submitted, or due, on or after January 18, 2011. Please be advised that the guidelines contained in NSF 11-1 apply to proposals submitted in response to this funding opportunity.

Cost Sharing: The PAPPG has been revised to implement the National Science Board's recommendations regarding cost sharing. Inclusion of voluntary committed cost sharing is prohibited. In order to assess the scope of the project, all organizational resources necessary for the project must be described in the Facilities, Equipment and Other Resources section of the proposal. The description should be narrative in nature and must not include any quantifiable financial information. Mandatory cost sharing will only be required when explicitly authorized by the NSF Director. See the PAPP Guide Part I: *Grant Proposal Guide (GPG)* Chapter II.C.2.g(xi) for further information about the implementation of these recommendations.

Data Management Plan: The PAPPG contains a clarification of NSF's long standing data policy. All proposals must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans. FastLane will not permit submission of a proposal that is missing a Data Management Plan. The Data Management Plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at: https://www.nsf.gov/bfa/dias/policy/dmp.jsp. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

Postdoctoral Researcher Mentoring Plan: As a reminder, each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. Please be advised that if required, FastLane will not permit submission of a proposal that is missing a Postdoctoral Researcher Mentoring Plan. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 16-1), which is effective for proposals submitted, or due, on or after January 25, 2016.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Science, Technology, Engineering, and Mathematics Advanced Global Institutes Program (STEM:AGI)

Synopsis of Program:

The Pan-American Advanced Studies Institutes (PASI) Program is a jointly supported initiative between the Department of Energy (DOE) and the National Science Foundation (NSF). Pan-American Advanced Studies Institutes are short courses ranging in length from ten to twenty-one days, involving lectures, demonstrations, research seminars, and discussions at the advanced graduate, post-doctoral, and junior faculty level.

PASIs aim to disseminate advanced scientific and engineering knowledge and stimulate training and cooperation among researchers of the Americas in the mathematical, physical, and biological sciences, the geosciences, the computer and information sciences, and the engineering fields. Proposals in other areas funded by NSF may be considered on an ad hoc basis as long as they are multidisciplinary; in this case, lead investigators must consult with the PASI Program before proposal submission.

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.

- PASI Team, Program Coordinator, telephone: 703-292-8710, email: oise-pasi@nsf.gov

- Arvind Kini, Department of Energy, telephone: 301-903-3565, email: a.kini@science.doe.gov

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

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.050 --- Geosciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.079 --- Office of International Science and Engineering
- 81.049 --- Office of Science Financial Assistance Program

Award Information

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 10 to 16

Anticipated Funding Amount: $1,200,000

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- Universities and Colleges with graduate research programs, accredited in, and having a campus located in the US, acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI:

Renewal PASIs are not allowed. Past PASI awardees may submit another PASI proposal on an entirely different topic; however, in case of comparable technically excellent proposals between first time applicants and repeat applicants, priority will be given to new applicants.

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

    Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

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

    April 24, 2012

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions:

Standard NSF award conditions apply.

Reporting Requirements:

Standard NSF reporting requirements apply.

TABLE OF CONTENTS

I. INTRODUCTION

Pan-American Advanced Studies Institutes are short courses of ten to twenty-one days duration, aimed at the advanced graduate, post-doctoral and junior faculty level. Supported by NSF and the Department of Energy, the courses should involve distinguished lecturers who are active researchers in the field anywhere in the world. PASIs intend to disseminate advanced scientific knowledge and stimulate training and cooperation among researchers of the Americas in the mathematical, physical, and biological sciences, the geosciences, the computer and information sciences, and the engineering fields. Proposals in other areas funded by NSF may be considered on an ad hoc basis as long as they are multidisciplinary.

II. PROGRAM DESCRIPTION

Approximately 10 to 16 awards will be made yearly to U.S. research institutions or professional societies for the purpose of organizing a PASI. The Principal Investigator (PI) shall be the designated contact person for the Institute and is expected to provide leadership in fully coordinating and integrating its activities. The PI is ultimately responsible for: (a) the preparation of the scientific and/or engineering program, (b) the selection of lecturers and students with an emphasis on broadening participation, (c) the administration of the PASI, and (d) the publication of lectures and proceedings from the activity through various media, including the development of a website for the PASI.

Institutes in the physical, mathematical, biological sciences, geosciences, computer and information sciences, and engineering disciplines may be supported. Institutes in the biological sciences are encouraged to place a special emphasis on any one or more of the following areas: systems biology, biodiversity, modeling and simulation, ecology on a regional to continental scale, and synthetic biology. Institutes in the geosciences may opt to emphasize an interdisciplinary focus such as, for example, climate change and its impact. Institutes in the computer and information sciences are encouraged to emphasize interdisciplinary areas of research, including, but not limited to secure and trustworthy cyberspace, smart health and well-being, future internet architectures, cyberphysical systems, data analytics, and cyberlearning. Institutes in engineering are encouraged to explore interdisciplinary research in advanced manufacturing, advanced robotics, nanoelectronics, renewable energy, smart grid power distribution systems, complex engineering and cyber physical systems, and innovation research that leads to partnerships. PASIs that address social, economic, and environmental systems and the sustainable viability of those systems through an interdisciplinary perspective are also strongly encouraged. More information on sustainable research can be found at the NSF website at (https://www.nsf.gov/sees).

Proposals for Institutes that focus on the etiology, diagnosis or treatment of physical or mental disease, abnormality, or malfunction in human beings or animals, will not be supported. Institutes developed around animal models of such conditions or the development or testing of drugs or other procedures for their treatment also are not eligible for support. Institutes in bioengineering, with diagnosis or treatment-related goals, however, that relate engineering principles to problems in biology and medicine while advancing engineering knowledge are eligible for support. Institutes that focus on research advances that seek improvements in safe, effective, efficient, equitable, and patient-centered health and wellness services for all people, including those with disabilities, are also eligible.

All PASIs should include a syllabus and a rationale for the choice of topics. For a substantive treatment of more than one topic, a duration of at least two weeks for the PASI is recommended.

Repeat PASIs are not allowed. Past PASI awardees may apply on a different topic; however, priority will be given to new PIs.

The PI should be assisted by a small Organizing Committee consisting of three to four lecturers from at least two other countries of the Americas and, if appropriate, from different research sectors and diverse backgrounds to broaden participation. A local scientist or engineer from the host country should be a member of the Organizing Committee. Brief professional background summaries and descriptions of the role to be played by each member of the Organizing Committee should be provided. Proposals that are of an applied nature, and especially where relevance to industry is claimed, should include a noted industrial scientist or engineer in the Organizing Committee

The choice of PASI lecturers and students/participants is the responsibility of the PI assisted by the PASI's Organizing Committee, and the procedure for such choices must be clearly outlined in the proposal, including the criteria that will be used to select the student/participants. The selection procedures should serve to recruit a highly qualified and diverse group of lecturers and students to broaden participation.

PASI lecturers should be chosen on the basis of their scientific, engineering, and training qualifications. Lecturers should be contacted before submission of the proposal. **An indication of their commitment to participate is necessary and should be in the proposal.** Scientists and engineers from non-Western Hemisphere countries may be selected in the event they bring qualifications not available from the other countries of the Americas.

The Institute will be aimed at the post-doctoral level, but may include advanced graduate students, as well as relevant junior scientists and engineers. PASIs should involve 8 to 12 lecturers and 25 to 40 students/participants from the different countries in the Americas, with at least half of the latter group being U.S. citizens or permanent residents.

In order to preserve balance, PASI students/participants from any single country in the Americas, other than the United States, should not exceed 25% of the total number supported by the award. PASI students/participants from outside the Americas may be accepted under special circumstances but in no case should their number exceed 15% of the total number supported by the grant. Students from outside the Americas may not receive financial support from the PASI grant.

Appropriate lecture and meeting rooms, telecommunication facilities, and accommodations for all participants within reasonable proximity are important in order to stimulate informal discussions during leisure periods. A site should be chosen well in advance in order to ensure availability. Preference will be given to PASIs located in a country in the Americas other than the United States in order to provide an international experience to students from the United States.

Institute organizers are strongly encouraged to seek support from other sources. In particular, host country contributions, as well as contributions from corporate and other sectors are especially encouraged, although they will not be a factor in the review process.

Joint sponsorship and support are permissible and welcome provided that the meeting conforms to the prescribed format and is designated a "Pan-American Advanced Studies Institute." Include such information in the FastLane Facilities, Equipment and Other Resources section, in lieu of other parts of the proposal (e.g., budget justification, project description). The description should be narrative in nature and must not include any quantifiable financial information.

Proposers must develop a publicly available web page of sufficient duration to provide up-to-date information on the PASI, with specific details on the activity including recruitment procedures, meeting topics, related activities, lecture notes, and links to publications, seminars, and collaborative research useful for the PASI. **Plans for dissemination of results of the meeting, including lecture notes and web-related instructional materials, must be part of the proposal.**

All PASIs should include an evaluation plan that explains how the proposer intends to measure the impact and success of the activity, including the approximate number of graduate students, post-docs, and junior faculty involved in the PASI; and a pre- and post-PASI evaluation form for all the participants that may capture suggestions for future collaborations and follow up activities.

A PASI award will cover expenses for the organization of the meeting, and travel and living expenses of lecturers and students. Registration fees should not be charged to PASI students. Participants from industry will be expected to cover their own costs.

It is expected that each Institute will involve a reasonable number of participants (approximately 30 to 50) including lecturers and students. **The cost for each such Institute may not exceed $100,000, aside from contributions from other sources.** In general, salaries will not be supported by PASI awards.

The budget should include: travel and living expenses for lecturers and students; materials and supplies, whenever needed; and publication costs. PIs should ensure that adequate costs are covered to ensure full student participation. Additional funds up to 10% of the total participant support costs listed may be included for administrative related expenses in other cost categories (e.g. support for an administrative assistant to help with organization and evaluation of the PASI pre- and post- meeting and any applicable indirect costs) that contribute to the effectiveness of the PASI program; any such costs must be listed under the appropriate NSF budget categories and must be explained in the Budget Justification. Organizations should propose in accordance with their current disclosed accounting practices. Prospective PIs should consult with their university's Office of Sponsored Programs about the calculation of indirect costs.

It is anticipated and encouraged that some students will obtain support from other sources in their home countries. Any expected contributions for the PASI from institutions or other sources should be mentioned in the FastLane Facilities, Equipment and Other Resources section, as described above.

III. AWARD INFORMATION

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 10 to 16

Anticipated Funding Amount: $1,200,000

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- Universities and Colleges with graduate research programs, accredited in, and having a campus located in the US, acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI:

Renewal PASIs are not allowed. Past PASI awardees may submit another PASI proposal on an entirely different topic; however, in case of comparable technically excellent proposals between first time applicants and repeat applicants, priority will be given to new applicants.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

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

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (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) 292-7827 or by e-mail from nsfpubs@nsf.gov.

NOTE: The program will not accept collaborative proposals for a single PASI submitted separately from multiple organizations.

See Section II above for additional information about what should be included in the PASI proposal.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Other budgetary limitations apply. Please see Section II of this solicitation for further information.

C. Due Dates

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

    April 24, 2012

D. FastLane/Grants.gov Requirements

For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

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 the NSF FastLane system for further processing.

Proposers that submitted via FastLane are strongly encouraged to use FastLane 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 the GPG as 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 *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018*. 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. (GPG Chapter II.C.2.d.i. contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including GPG Chapter II.C.2.d.i., prior to the review of a proposal.

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

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and

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

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

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

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

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

Additional Solicitation Specific Review Criteria

In addition to these review criteria, NSF and DOE will take into consideration how the activity is organized and how it will contribute to the enhancement and improvement of international scientific, engineering, and educational collaborative activities. While host country contributions as well as contributions from corporate and other sectors are not precluded, they will not be a factor in the review process.

More specifically, reviewers will take into account:

- strength, commitment, and diversity of organizing committee and lecture team
- quality of syllabus and planned activities
- selection procedure for students that ensures broader participation
- housing, facilities, and other logistics
- plans for dissemination of results from the PASI
- evaluation plan

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.

Please be aware that NSF as part of its partnership with DOE will share proposals and review materials with officials from this partner agency. Representatives from DOE will participate in the review process as well as in the award decision process.

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

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process).

B. Award Conditions

An NSF award consists of: (1) the award 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) 292-7827 or by e-mail from nsfpubs@nsf.gov.

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

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 *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

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:

- PASI Team, Program Coordinator, telephone: 703-292-8710, email: oise-pasi@nsf.gov

- Arvind Kini, Department of Energy, telephone: 301-903-3565, email: a.kini@science.doe.gov

For questions related to the use of FastLane, contact:

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

For questions relating to Grants.gov contact:

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

If you have questions or issues you would like to discuss prior to preparing an application, we encourage you to telephone or send an e-mail message to the NSF staff listed above or DOE contact Arvind Kini, (301-903-3565; e-mail: a.kini@science.doe.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 http://www.grants.gov.

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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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- **Location:**   4201 Wilson Blvd. Arlington, VA 22230

- **For General Information**   (703) 292-5111
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The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

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