Accelerating Research through International Network-to-Network Collaborations (AccelNet)

PROGRAM SOLICITATION
NSF 19-501

National Science Foundation

Office of International Science and Engineering

Directorate for Biological Sciences

Directorate for Computer & Information Science & Engineering

Directorate for Education & Human Resources

Directorate for Engineering

Directorate for Geosciences

Directorate for Mathematical & Physical Sciences

Directorate for Social, Behavioral & Economic Sciences

Office of Integrative Activities

Letter of Intent Due Date(s) *(required)* (due by 5 p.m. submitter's local time):

    December 21, 2018

        FY 2019 Competition

    October 30, 2019

        FY 2020 Competition

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

    February 28, 2019

        FY 2019 Competition

    January 31, 2020

        FY 2020 Competition

IMPORTANT INFORMATION AND REVISION NOTES

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 19-1), which is effective for proposals submitted, or due, on or after February 25, 2019.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

    Accelerating Research through International Network-to-Network Collaborations (AccelNet)

Synopsis of Program:

    The goals of the Accelerating Research through International Network-to-Network Collaborations (AccelNet) program are to accelerate the

process of scientific discovery and prepare the next generation of U.S. researchers for multiteam international collaborations. The AccelNet program supports strategic linkages among U.S. research networks and complementary networks abroad that will leverage research and educational resources to tackle grand scientific challenges that require significant coordinated international efforts. The program seeks to foster high-impact science and engineering by providing opportunities to create new collaborations and new combinations of resources and ideas among linked global networks.

This solicitation invites proposals for the creation of international networks of networks in research areas aligned either with one of the NSF Big Ideas or a community-identified scientific challenge with international dimensions. AccelNet awards are meant to support the connections among research networks, rather than supporting fundamental research as the primary activity. Each network of networks is expected to engage in innovative collaborative activities that promote synergy of efforts across the networks and provide professional development for students, postdoctoral scholars, and early-career researchers. There are two proposal categories covered by this solicitation: Catalytic and Full-Scale Implementation.

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.

- Claire A. Hemingway, telephone: (703) 292-7135, email: chemingw@nsf.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
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- Education and Human Resources
- 47.079 --- Office of International Science and Engineering
- 47.083 --- Office of Integrative Activities (OIA)

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 7 to 9

Anticipated Funding Amount: $3,000,000 to $6,000,000

Anticipated Funding Amount: $3 million to $6 million, pending availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- 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.

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: 1

An individual may appear as PI or co-PI in no more than one proposal submitted in response to this solicitation, whether Catalytic or Full-Scale Implementation.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Submission of Letters of Intent is required. Please see the full text of this solicitation for further information.

- **Preliminary Proposal Submission:** Not required

- **Full Proposals:**
    - Full Proposals submitted via FastLane: *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 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

- **Letter of Intent Due Date(s)** *(required)* (due by 5 p.m. submitter's local time):

    December 21, 2018

    FY 2019 Competition

    October 30, 2019

    FY 2020 Competition

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

    February 28, 2019

    FY 2019 Competition

    January 31, 2020

    FY 2020 Competition

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:

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

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I. INTRODUCTION

The scientific enterprise is increasingly collaborative and international. Today's research collaborations function as dynamic multiteam systems that impact the growth of global knowledge[1]. Internationally coauthored publications, which are more highly cited than domestic-only publications, are increasing in number in all research fields. High-impact research is more common in cases where novel combinations of research are brought together and in countries that foster links with foreign researchers. Increased investment in science, technology, engineering, and mathematics (STEM) by other nations creates new communities of excellence. These factors call for a new opportunity to harness intellectual and other resources across the global research enterprise towards achieving larger goals of research networks. Accordingly, this AccelNet solicitation is designed to link U.S. research networks with foreign research networks to coordinate convergent, interdisciplinary, or disciplinary approaches to address grand research challenges.

The AccelNet program supports strategic linkages between U.S. and international research networks to stimulate and foster critical research advances. The AccelNet program builds on NSF investments in research networks, international network connectivity, large-scale science and engineering facilities, and research centers located both inside and outside the U.S. This new funding opportunity is designed to foster networks of networks, creating links between multiple networks that cross international boundaries, rather than creating a single new network (see Research Coordination Networks).

In this solicitation, a network is considered to be an established, coordinated, distributed group of scientific researchers who cooperate within or across fields to collect and share resources, knowledge, and expertise. A network of networks is a link among networks to amplify connections and leverage resources to accelerate advancement of the frontiers of science and engineering. Proposed international network-to-network collaborations must go beyond existing research networks to forge new linkages or enhance existing connections among networks to create novel connections and leverage expertise, data, facilities, and/or other resources. Participants in the network of networks may include stakeholders from universities, government agencies, non-profit organizations, and private industry, so long as the goals of the network of networks are focused on advancing the frontiers of science, engineering, and STEM education.

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[1] Adams, J. 2013. The Fourth Age of Research. Nature 497: 557. Coccia, M. and L. Wang, 2016. Evolution and convergence of the patterns of international scientific collaboration. PNAS 113(8): 2057-2061. Cooke, N. and M. Hilton, eds. 2015. Enhancing the Effectiveness of Team Science. National Research Council. Washington, DC, The National Academies. Fortunato, S. et al. 2018. Science of Science 359: eaao0185. Uzzi, B. et al. 2013. Atypical Combinations and Scientific Impact. Science 343:468-472. Wagner, C. et al. 2015. The Continuing Growth of Global Cooperation Networks in Research: A Conundrum for National Governments. PLoS ONE 10(7): e0131816. Wagner, C. and K. Jonkers. 2017. Open Countries have Strong Science. Nature 550: 32-33.

II. PROGRAM DESCRIPTION

A. Overview

AccelNet seeks to advance research discoveries through international network-to-network collaborations that align with either one of the NSF 10 Big Ideas or a community-identified grand challenge in areas supported by NSF. The program will support development of new and strengthen existing collaborations among networks of researchers in the U.S. and networks of researchers abroad to share information and ideas, coordinate ongoing or planned research activities, foster synthesis and new collaborations, and in other ways advance science, engineering, and STEM education through interactions across scientific and geographic boundaries, for the purposes of:

- accelerating the process of scientific discovery; and
- preparing students, postdoctoral scholars, and early-career researchers for success in conducting and leading multiteam international collaborations.

Through AccelNet, NSF is also interested in promoting innovative ideas for effective international collaboration in general, including but not limited to, novel networking strategies, scholar exchange, collaborative technologies, development or implementation of community standards for data and metadata, or the collaborative use of equipment, instrumentation, infrastructure, and other resources. AccelNet is aimed at fostering connections needed among research networks to address pressing scientific challenges, thereby fostering discovery, rather than supporting primarily research or research infrastructure. Examples of supported activities to foster such connections include, but are not limited to, conferences, meetings, personnel exchanges, interdisciplinary training, data exchanges, synthesis efforts, and the adoption of existing cyber tools to enable linkages between the U.S. network and counterpart networks in other countries or regions.

B. Network of Network Characteristics

AccelNet invites proposals for establishing or enhancing international networks of networks to advance research discovery and engage the next generation of the STEM workforce in innovative international collaboration. The proposed international networks of networks may vary in size and maturity but must consist of a scope beyond an individual network or a single network-to-network connection. While the projects may exhibit diverse forms of organization, collaboration, and operation suited to the specific needs of the proposed research and training activities, all projects will have or develop the following characteristics:

- International engagement that is integral to the success of the activities of the research network;
- Aligned mission and goals among the participating networks to foster research innovation and scientific discovery;
- Development of professional skills and global research perspectives for students, particularly graduate students, postdoctoral scholars, and/or early-career researchers;
- Leveraged resources across participating networks for the mutual benefit of the network of networks; and
- Protocols for communication, collaboration, data management, intellectual property, shared-use infrastructure, and other network activities, facilities, or products that reduce the barriers to international collaboration.

C. Types of Projects Supported

The scientific readiness of fields and/or domains covered by research networks will vary, as will the level of maturity of the networks themselves. Both new and emerging areas, as well as long standing areas of science and engineering are expected to benefit from AccelNet support. Because the number, size, and strength of existing networks among different areas of science and engineering will vary, as will the networks' goals, proposals will be accepted at two distinct levels:

- **Catalytic** (up to 3 years; total budget up to $750,000) – Networks of networks at the catalytic level may either be nascent in nature or be more established but have a limited-term goal.

The nascent nature may be in terms of the maturity of the U.S. networks or the international networks, or the level of connectivity among the networks. Catalytic projects proposed by nascent networks of networks may focus on community building and linkages, such as exploring common missions and goals, developing gap analyses and logic models, exchanging ideas, people, and resources, or establishing a community of practice.

Catalytic projects proposed by more established networks should have a specific, limited-term goal which, if accomplished, has the potential to catalyze a breakthrough for the network of networks, such as a specific research approach, networking strategy, or collaborative technology.

- **Full-Scale Implementation** (up to 5 years; total budget up to $2 million) – Full-Scale Implementation networks of networks are envisioned as consisting of a core of networks in the U.S. and abroad that are operational, have established an understanding of the status of the research and researchers across their fields, and are well-positioned to engage each other to advance research. Examples of the types of activities that projects at the Full-Scale Implementation level could undertake include, but are not limited to, coordinating goals among networks, developing and disseminating products and practices, engaging in synthesis efforts to integrate and transfer knowledge, and expanding effective professional development activities for students and postdoctoral scholars in international networks.

Proposers should carefully consider to which project level they are proposing and select the level appropriate for the stage of existing collaboration and anticipated outcomes of the proposed network of networks. It is not expected that a network of networks be funded first at the Catalytic level prior to being considered for funding at the Full-Scale Implementation level.

D. Research Themes Supported

Proposals are accepted in any field or combination of fields of science, engineering, or education research supported by NSF, or convergent fields that cut across NSF-supported disciplines (see the NSF definition of convergence). Proposed networks of networks must focus on a research area to give coherence to the international collaboration and integration of complementary expertise. Proposed research themes must align either with one of the NSF 10 Big Ideas or a community-identified scientific challenge with international dimensions. Please refer to the NSF 10 Big Ideas as described on the NSF website (NSF 10 Big Ideas) for alignment of a proposed project to one of these NSF areas. A proposed project in a disciplinary, interdisciplinary, or convergent research theme in an area other than an NSF Big Idea must align with a scientific challenge identified by the community that has high potential for transformative discoveries.

III. AWARD INFORMATION

Catalytic Awards: total budget up to $750,000 for up to 3 years

Full Implementation Awards: total budget up to $2 million for a maximum of 5 years

Subject to the availability of funds

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including

through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- 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.

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: 1

An individual may appear as PI or co-PI in no more than one proposal submitted in response to this solicitation, whether Catalytic or Full-Scale Implementation.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent *(required)*:

A compliant LOI submitted by the Authorized Organizational Representative of the Principal Investigator only is required for proposal submission. LOIs are used to help gauge potential community interest and therefore better understand proposal review requirements. They are not used as pre-approval mechanisms for the submission of proposals, and no feedback is provided to the submitters. Submitting an LOI does not represent a requirement or commitment on behalf of the submitting institution to submit a full proposal. Failure to submit a LOI, however, will result in a full proposal being returned without review. No more than one LOI may be submitted by a PI or co-PI in response to this solicitation, whether Catalytic or Full-Scale Implementation.

Submit a one-page LOI through FastLane by the deadline with the following information:

- The name and departmental affiliation of the Principal Investigator (PI) and the co-PI(s).
- The project title, which must begin with "AccelNet:".
- A Project Synopsis (up to 2500 text characters) that provides a summary of the theme the network of networks will address (see Section D above for more information on themes); the benefit of a network of networks approach to this theme (to the participants, U.S. and international research communities, and society); the anticipated U.S. and international networks and their contributions; and the connection to an NSF Big Idea or a community-identified scientific challenge. This section should also include examples of the kinds of collaborative activities planned to promote meaningful intellectual integration and synergy of efforts across the networks as well as examples of professional development activities planned for the students, postdoctoral scholars, and early-career researchers. Please indicate whether a full proposal, if submitted, would be under the Catalytic or Full-Scale Implementation level.

Letter of Intent Preparation Instructions:

When submitting a Letter of Intent through FastLane in response to this Program Solicitation please note the conditions outlined below:

- Submission by an Authorized Organizational Representative (AOR) is required when submitting Letters of Intent.

- Submission of multiple Letters of Intent is not permitted

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

- 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 Proposal & Award Policies & 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. 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 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 the NSF FastLane system. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.C.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.

Proposers are strongly encouraged to contact an AccelNet program officer prior to proposal submission. AccelNet funds will support U.S. institutions only. U.S. PIs should encourage their foreign collaborators to consult their appropriate counterpart funding organization about opportunities in accordance with the guidelines of that organization.

The full proposal must include only the main documents and supplementary documents below. Proposals that are missing required sections and/or exceed the 15-page limit for the Project Description, including tables and illustrations, will be returned without review.

Cover Sheet: An informative title for the proposed project that begins with "AccelNet:" must be provided. Any collaborative project with proposals from multiple institutions should begin with "Collaborative Research: AccelNet:".

Check the international cooperative activities box and indicate the country or countries involved. For planning purposes, use October 1, 2019 (or 2020) as the award start date for proposals submitted to the FY2019 (or FY2020) competition.

Entries on the Cover Sheet are limited to the PI and a maximum of four co-PIs. For additional FastLane/Grants.gov instructions, see Section D below.

Project Summary (maximum 1 page): Include in the overview statement whether the proposal is submitted as a Catalytic or Full-Implementation project. The summary of the proposed project should address the rationale for the proposed network of networks and the major planned activities and mechanisms for promoting collaboration in the network of networks as appropriate for that project type. Both NSF merit review criteria (Intellectual Merit and Broader Impacts) must be addressed in separate statements.

Project Description (maximum 15 pages): Sub-elements of the Project Description outlined below must be addressed within the 15-page limit.

Network of Networks Theme, Vision, and Goals: Describe the intellectual focus of the proposed network of networks, addressing the need, opportunity, and urgency (which should be of a scale and complexity that would not be possible within a single network, within a single nation, or through the normal modes of NSF research support). AccelNet proposals at both the Catalytic and Full-Scale Implementation levels must clearly describe the connection of the research topic being addressed through the network of networks to one or more of the NSF Big Ideas and/or a community-recognized grand challenge with international dimensions. Proposals should include references that support identification of scientific or engineering challenges. Provide a statement of purpose that makes clear the overall vision of the network of networks. Indicate the potential impact or expected significance of the research, education, and network-to-network activities to the participants and the U.S. and international research communities. Describe the benefit to the U.S. scientific enterprise and the societal value of the activities.

Proposals must articulate the unique opportunities and/or novel connections that will be catalyzed and what will be achieved through the activities that could not be achieved with single group or individual support. In addition, proposals at the Full-Scale Implementation level must include a mapping of the field(s) on which the network of networks is focused and explain how the proposed network of networks relates to existing efforts and research frameworks. A Full-Scale Implementation proposal lacking such a mapping of the research field will be returned without review.

Participating research networks should develop an overarching shared vision with respect to the scientific and network-to-network goals, recognizing that member networks will have unique goals as well. Proposals at the Catalytic level must describe the intended process to identify and establish common goals. Proposals at the Full-Scale Implementation level must demonstrate overarching alignment of goals among partners.

Proposals should describe how the international network of networks will identify areas of important and novel research and establish mechanisms for substantive collaborations involving U.S. and foreign stakeholders in the research theme. Proposals should also describe the planned major scientific, education, and networking activities that will enable scientific integration and innovative collaboration during the duration of the project. A description of substantive and concrete outcomes that the proposed project aims to deliver by the end of the award should also be included.

For Catalytic Projects, if the linkages and/or goals catalyzed are expected to become a long-term network of networks, discuss how the network of networks will evolve its efforts beyond the award period. For Full-Scale Implementation Projects, proposers should include a timeline for expected outcomes and milestones. Full-Scale Implementation proposals should also discuss how the network of networks would be completed, transformed, or sustained, as appropriate, once the period of NSF funding has ended.

International Collaborations and Contributions: Proposals should describe the organization and capabilities of the key networks and participants, including recognition of the value of different types of contributions and resources and indicating the complementarity and synergies afforded by new or strengthened linkages across networks. Additional details of the contributions could be included in the Facilities, Equipment, and Other Resources section. Proposals should include a description of the scope, level of formality, size and strength of the participating networks, and their connections in their current state, as appropriate for Catalytic and Full-Scale Implementation projects. Proposals should identify the research and education resources, such as databases, facilities, instruments, and experts, to be leveraged for mutual benefit.

Coordination Plan: Proposals at both the Catalytic and Full-Scale Implementation levels should present plans for coordination and communication across the proposed network of networks, including a description of the procedures, practices, and other protocols that will foster meaningful collaborations and enable the network of network's goals to be met. Describe how the proposed international network of networks will address the unique challenges related to integration of personnel and resources, including open data sharing, publication of results, copyright or intellectual property protection, software ownership, communication of outputs, equipment sharing, and articulation agreements, as appropriate. Describe the processes to be used to prioritize activities consistent with the goals of the network of networks to allocate funds and resources, and to coordinate IT or other essential research infrastructure. Include plans to maintain cohesion and to address potential areas of conflict and evolving leadership needs across the linked networks. Define the specific roles and responsibilities of the collaborating PIs, co-PIs, other Senior Personnel, and any paid consultants at all organizations involved, as well as the plans to coordinate activities of key project personnel. If a steering committee or other body is included as part of the structure and decision-making processes, include a list of the committee members (see Personnel and Partner Organizations Supplementary Document).

Catalytic level proposals must describe the intended process to establish agreements among network members on matters related to integration of personnel and resources. Proposals at the Full-Scale Implementation level must describe processes or agreements that may already be in place as well as those planned.

Student and Early-Career Development Plan: Describe the proposed activities and opportunities within the network of networks to build or enhance professional skills and global research perspectives of students, particularly graduate students, postdoctoral scholars, and early-career researchers, including plans for international exchange programs or other substantive education and training activities. These efforts should be directly connected with advancing the activities of the network of networks. Include plans for the selection and mentoring of students and postdoctoral scholars and for the selection and involvement of early-career researchers.

Broadening Participation Plan: Describe the approach the proposed network of networks will take to increase diversity, broaden participation, and encourage the involvement of underrepresented groups within its activities, including engaging participants at a diverse range of institutions.

Evaluation: Proposals should describe plans for the assessment of the proposed network of networks, including self-evaluation of progress toward the goals of the linked networks. Proposals must position their Student and Early-Career Development and Broadening Participation plans with respect to the literature of what is currently known to be effective and include assessment of these components.

Full-Scale Implementation projects should also provide examples of milestones and metrics that would support the periodic independent assessment of the performance of the network of networks. Describe plans for tracking, over the life of the linked networks, the career development of graduate students and postdoctoral scholars who participate in significant activities and mechanisms for managing mentoring activities.

References Cited: Not to exceed five pages.

Biographical Sketches (two-page limit per person): Provide biographical sketches for up to 10 Core Participants, including the PI, co-PIs, senior personnel, and foreign collaborators. Additional participants may be listed in Personnel and Partner Organizations under Special Information and Supplementary Documentation.

Budget and Allowable Costs: The proposal must provide yearly budgets for the duration of the project. A network of networks is a dynamic entity that has the ability to evolve over time. The budget structure needs to be designed to facilitate such evolution. The proposed budget should be consistent with the costs for the network of networks' partnership building and the catalytic research and education activities. Proposals are expected to involve multiple organizations. Organizations ineligible to submit to this program solicitation may not receive subawards. If they are part of the proposed network of networks, their participation is expected to be supported by non-NSF-sources.

Funds may be requested to promote collaborative activities, such as exchange of students, postdoctoral scholars, or faculty, travel expenses for students and scientists to conduct networking activities in the international partner's home laboratory, sharing of unique facilities, establishment of a public website, network retreats, and partial support of meetings uniquely tied to the activities that link networks. Any well-justified activity that fulfills the goals of the AccelNet program and is allowable by NSF policies (see the NSF PAPPG) will be considered. In Full-Scale Implementation projects, funds may be requested for product development and dissemination; funds may also be used to support collaborative, exploratory research projects among participants if targeted for students, postdoctoral scholars, or early-career researchers and under 5% of the total budget.

Proposers should budget funds for up to four network representatives to attend a PI meeting during year 1 of the project. Projects submitted to the Full-Scale Implementation level should also budget funds for up to four network representatives to attend a PI meeting in years 3 and 5.

As NSF funding predominantly supports U.S. participants, network participants from institutions outside the U.S. are encouraged to seek support from their respective funding organizations, notably participants from developed countries. NSF funds may not be used to support the expenses of the international scientists and students at their home institution. NSF funds may, however, be used for AccelNet-related expenses for international partners to participate in networking activities while in the U.S.

Current and Pending Support: Proposers should provide current and pending support information for the PI, co-PIs, and senior personnel.

Facilities, Equipment, and Other Resources: Proposers should provide a description of the facilities and major instrumentation that are available should the project be funded. For NSF and its reviewers to assess the scope of a proposed project, all resources (including those from partner organizations in the U.S. and abroad) available to the project, must be described in this section.

Special Information and Supplementary Documentation:

1. Personnel and Partner Organizations (3-page limit): This information provides NSF and reviewers with a comprehensive list of the personnel and organizations involved in key components of the network of networks. Provide current, accurate information for all personnel and organizations with roles in the leadership, coordination, research, education, dissemination, and assessment activities. The list should include all PIs, co-PIs, Senior Personnel, paid/unpaid Consultants or Collaborators, Subawardees, Postdoctoral scholars, and project-level advisory committee members. This list should be numbered and include (in this order) Full name, Organization(s), and Role in the project, with each item separated by a semi-colon. Each person listed should start a new numbered line. For example:

   1. Mary Smith; XYZ University; PI
   2. John Jones; University of PQR; Senior Personnel
   3. Jane Brown; XYZ University; Postdoctoral Scholar; project coordination
   4. Bob Adams; ABC Community College; Paid Consultant; professional development training
   5. Susan White; DEF Corporation; Unpaid Collaborator
   6. Tim Green; ZZZ University; Subawardee; assessment

2. Data Management Plan: Include a data management plan that describes whether new data products will be produced, how they will be managed and secured by each contributor, how they will be made accessible to all partners, and who controls and owns the data. This description should align with the Project Description's Coordination Plan in handling information exchange, intellectual property rights, derived products, databases, software, model output, and materials sharing, as well as determining authorship or proper attribution of credit for peer-reviewed or other publications that may result from the network of networks' activities. The plan should articulate how the network of networks will conform to the NSF policy on dissemination and sharing of research results as well as any educational products. It should address the following:

   - types of data, samples, physical collections, software, curriculum materials, and other materials expected to be produced through the network of networks;
   - standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies); and
   - plans for archiving data, samples, and other research products, and for preservation of access.

This plan will be reviewed as part of the intellectual merit and broader impacts of the proposal. Data management requirements and plans relevant to Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at https://www.nsf.gov/bfa/dias/policy/dmp.jsp.

3. Postdoctoral Researcher Mentoring Plan: 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. The mentoring plan must describe the mentoring that will be provided to all postdoctoral researchers supported by the project, irrespective of whether they reside at the submitting organization. Proposers are advised that the mentoring plan may not be used to circumvent the Project Description page limitation.

4. Letters of Collaboration: This section may include any letters of collaboration from individuals or organizations that are integral parts of the proposed project, such as the involvement of collaborator organizations that are not supported by subawards or documentation of permission to access materials, data, or other associated projects activities. Letters should be limited to stating the intent to participate in the proposed collaboration and should not contain endorsements or evaluation of the proposed project (See PAPPG Chapter II.C.2.d(iv)). Each letter of collaboration must only include the following statement:

   "If the proposal submitted by Dr. [insert the full name of the Principal Investigator] entitled [insert the proposal title] is selected for funding by NSF, it is my intent to collaborate and/or commit resources as detailed in the Project Description or the Facilities, Equipment or Other Resources Section of the proposal."

Single-Copy Documents:

Collaborators & Other Affiliations Information: Collaborators & Other Affiliations (COA) information specified in the PAPPG should be submitted through the use of the COA template.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

C. Due Dates

- **Letter of Intent Due Date(s)** *(required)* (due by 5 p.m. submitter's local time):

  December 21, 2018

     FY 2019 Competition

  October 30, 2019

     FY 2020 Competition

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

  February 28, 2019

     FY 2019 Competition

  January 31, 2020

     FY 2020 Competition

D. FastLane/Research.gov/Grants.gov Requirements

For Proposals Submitted Via FastLane or Research.gov:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: https://www.fastlane.nsf.gov/a1/newstan.htm. 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 FastLane or Research.gov user support, call the FastLane and Research.gov Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov or rgov@nsf.gov. The FastLane and Research.gov Help Desk answers general technical questions related to the use of the FastLane and Research.gov systems. 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 or 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 *Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 – 2022*. 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.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 PAPPG 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

1. Potential of the proposed network of networks to advance discovery in a research area aligned with one or more of the NSF 10 Big Ideas or a community-identified grand challenge, including:

- Readiness of the specific research communities at the Catalytic or Full Implementation level (both in the U.S. and the collaborating countries);
- Cohesion and level of integration of the vision and goals; and
- Clarity of the catalytic activity (Catalytic level) or clarity of mapping of the research field (Full Implementation) the network of networks will address.

2. Potential of the proposed network of networks to prepare the next generation of students, particularly graduate students, postdoctoral scholars, and early-career researchers to conduct and lead international multiteam science and engineering.

3. Mutual benefits of the international collaboration, including true intellectual collaboration with the international partner(s) and ability to capitalize on existing strengths and connections, and benefits to be realized from the expertise and specialized skills, facilities, sites, and/or resources of the international counterpart, recognizing different partners may bring different types of contributions to the network.

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 applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees 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 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 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) 292-8134 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.

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.

Awardees will be required to participate in program-level evaluation by which NSF can assess implementation processes and progress toward program level outcomes. NSF, an NSF contractor, or a grantee on behalf of NSF, may periodically conduct program evaluations or special projects that necessitate access to project level staff and data. This activity may occur at any time during the grant period and could occur after the grant has ended. Project-level participation includes responding to inquiries, interviews and other methods of common data collection and/or aggregation across individual grants. In addition, PIs and project-level evaluators will be asked to assist in developing a program evaluation that will mutually benefit the agency and program participants.

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:

- Claire A. Hemingway, telephone: (703) 292-7135, email: chemingw@nsf.gov

For questions related to the use of FastLane or Research.gov, contact:

- FastLane and Research.gov Help Desk: 1-800-673-6188

FastLane Help Desk e-mail: fastlane@nsf.gov.

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.

ABOUT THE NATIONAL SCIENCE FOUNDATION

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

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

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

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 for instructions regarding preparation of these types of proposals.

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

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

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at https://www.nsf.gov

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

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

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

- **To Order Publications or Forms:**

  Send an e-mail to: nsfpubs@nsf.gov

  or telephone: (703) 292-7827

- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See 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
Office of the General Counsel
National Science Foundation
Alexandria, VA 22314

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