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

PROGRAM SOLICITATION
NSF 21-511

REPLACES DOCUMENT(S):
NSF 19-501

National Science Foundation

Office of International Science and Engineering

Directorate for Biological Sciences

Directorate for Computer and Information Science and Engineering

Directorate for STEM Education

Directorate for Engineering

Directorate for Geosciences

Directorate for Mathematical and Physical Sciences

Directorate for Social, Behavioral and Economic Sciences

Office of Integrative Activities

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

January 04, 2021

FY 2021 Competition

October 13, 2021

October 11, 2022

October 09, 2023

Second Monday in October, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

The previous AccelNet solicitation (NSF 19-501) issued in 2019 called for international networks of networks addressing scientific grand challenges that require significant international research coordination, either aligned with one of NSF's 10 Big Ideas or community-identified grand challenges. This new solicitation clarifies definitions, budgetary information, and announces broader target areas, as well as changes to submission requirements. The substantive changes in this FY 2021 solicitation include:

- Letters of Intent are no longer required - NSF 19-501 required potential proposers to submit a Letter of Intent (LOI) before submitting a full proposal. A LOI is no longer required under this solicitation.
- Restructuring of award types - NSF 19-501 described two project categories to which proposals could be submitted: Catalytic and Full-Scale Implementation. This solicitation has discontinued Catalytic awards and instead establishes two categories of AccelNet awards: Design and Implementation.
- Plans for Data Management are now included as part of the Program Specific Review Criteria and should be supported by appropriate data science expertise.
- In the case of proposals involving more than one organization, submission of a collaborative proposal from multiple organizations, as described in the Proposal & Award Policies & Procedures Guide, is no longer accepted in this solicitation. A single organization must be identified as the lead, and a single proposal describing the entire project must be submitted by that organization. Funds may be distributed among partner organizations via subawards from the lead organization. A budget on the standard NSF budget format should be submitted for each subawardee. The requirement for a single organization to submit the sole proposal for a project is designed to facilitate effective coordination among participating organizations and avoid difficulties that ensue in funded projects when individuals change organizations and/or cease to fulfill project responsibilities.

Important Information

Innovating and migrating proposal preparation and submission capabilities from FastLane to Research.gov is part of the ongoing NSF information technology modernization efforts, as described in Important Notice No. 147. In support of these efforts, proposals submitted in response to this program solicitation must be prepared and submitted via Research.gov or via Grants.gov and may not be prepared or submitted via FastLane.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 22-1), which is effective for proposals submitted, or due, on or after October 4, 2021.

SUMMARY OF PROGRAM REQUIREMENTS

This document has been archived and replaced by NSF 23-619.

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 research challenges that require significant coordinated international efforts. The program seeks to foster high-impact science and engineering by providing opportunities to cooperatively identify and coordinate efforts to address knowledge gaps and research needs.

This solicitation invites proposals for the creation of international networks of networks in research areas aligned with a grand challenge identified as a priority by the research community or NSF, such as the NSF Big Ideas or in an active program solicitation. AccelNet awards 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 networks and provide professional development for U.S. students, postdoctoral scholars, and early-career researchers. Two proposal categories covered by this solicitation include: Design and Implementation.

It is strongly recommended that prospective PIs contact the AccelNet Program Officer(s) to ascertain that the focus and budget of their proposed activities are appropriate for this solicitation.

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.

- Khershed P. Cooper, ENG/CMMI, telephone: (703) 292-7017, email: khcooper@nsf.gov
- Kwabena Gyimah-Brempong, SBE/SES, telephone: (703) 292-7466, email: kgyimahb@nsf.gov
- Bruce K. Hamilton, ENG/CBET, telephone: (703) 292-8320, email: bhamilto@nsf.gov
- Kara C. Hoover, OD/OISE, telephone: (703) 292-2235, email: kchoover@nsf.gov
- Karen R. Lips, OD/OISE, telephone: (703) 292-5133, email: klips@nsf.gov
- Bogdan Mihaila, CISE/OAC, telephone: (703) 292-8235, email: bmihaila@nsf.gov
- Paul Raterron, OD/OISE, telephone: (703) 292-8710, email: praterro@nsf.gov
- Mangala Sharma, GEO/AGS, telephone: (703) 292-4773, email: msharma@nsf.gov
- Robyn Smyth, BIO/DEB, telephone: (703) 292-2996, email: rsmyth@nsf.gov
- Ralph F. Wachter, CISE/CNS, telephone: (703) 292-8950, email: rwachter@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 --- STEM Education
- 47.079 --- Office of International Science and Engineering
- 47.083 --- Office of Integrative Activities (OIA)
- 47.084 --- NSF Technology, Innovation and Partnerships

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards:

10 to 14

Anticipated Funding Amount:

$10,000,000

Anticipated Funding Amount: $10 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 Design or Implementation.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
  - Full Proposals submitted via Research.gov: *NSF Proposal and Award Policies and Procedures Guide* (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.
  - Full Proposals submitted via Grants.gov: *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov* guidelines apply (Note: The *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide).

B. Budgetary Information

- **Cost Sharing Requirements:**

  Inclusion of voluntary committed cost sharing is prohibited.

- **Indirect Cost (F&A) Limitations:**

  Not Applicable

- **Other Budgetary Limitations:**

  Not Applicable

C. Due Dates

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

  January 04, 2021

  FY 2021 Competition

  October 13, 2021

  October 11, 2022

  October 09, 2023

  Second Monday in October, Annually Thereafter

Proposal Review Information Criteria

Merit Review Criteria:

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

Award Administration Information

Award Conditions:

Standard NSF award conditions apply.

Reporting Requirements:

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

TABLE OF CONTENTS

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 in science and engineering.

The AccelNet program supports strategic linkages between U.S. and international research networks to identify knowledge gaps and develop research roadmaps that will stimulate and foster future research advances. The AccelNet program builds on NSF investments in research networks, research infrastructure, international network connectivity, large-scale science and engineering facilities, and research centers located both inside and outside the U.S. This funding opportunity is designed to foster networks of networks, creating links between multiple research networks that cross international boundaries. The program is not intended to support the establishment of a single new network as available from other NSF funding opportunities (see Research Coordination Networks); proposed projects should be of a scale and complexity that would not be possible within a single research network, within a single nation, or through the normal modes of NSF research support.

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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 a grand challenge identified as a priority by the research community or NSF. NSF priority areas may be specified in initiatives such as the NSF Big Ideas or in active program solicitations. AccelNet is aimed at fostering connections among research networks, rather than supporting primarily research or research infrastructure. The program will support development of networks of networks to share information and ideas, coordinate ongoing or planned research activities, foster synthesis and integration through new collaborations on theory building and innovative development of methods and tools. It calls for creative ways to advance science, engineering, and STEM education and prepare the U.S. workforce through interactions across scientific and geographic boundaries.

AccelNet supports new linkages among networks of researchers in the U.S. and complementary networks abroad that will leverage research and educational resources and assets for the purposes of:

- accelerating the process of scientific discovery; and
- preparing U.S. science and engineering 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, including but not limited to, novel networking strategies involving virtual, hybrid and alternative approaches, scholar exchange, collaborative technologies, development or implementation of community standards for data and metadata, or collaborative use of equipment, instrumentation, infrastructure, and other resources.

In this solicitation, a network is considered to be formed of geographically distributed teams of researchers who cooperate within or across fields to collect and share resources, knowledge, and expertise. A network is not a set of faculty at a university or science facility. As an open group of distributed researchers, a network must have members from various organizations and engage at scales larger than lab-to-lab collaborations focused on a particular experiment or project. A research network may be informally or formally recognized, thus may or may not have a network name, website, or similar identification features. It should identify, however, the motivating purpose of the network, and how it would add value through formation of the larger network of networks.

A network of networks is a federation of individual, component networks and must include multiple independent groups of distributed researchers who cooperate on a broad research theme. Proposed international networks of networks must forge new linkages among research networks to create novel synergies and leverage expertise, data, facilities, and/or other resources. The network of networks may include stakeholders from universities, government agencies, non-profit organizations, and private industry, so long as the goals are focused on advancing the frontiers of science, engineering, and STEM education.

B. Network of Network Characteristics

The proposed networks of networks should have or develop the following characteristics:

- Roadmap of the research needs of the community to foster research innovation and scientific discovery;
- International engagement that is integral to the success;
- Leveraged substantial resources across partners for mutual benefit;
- Professional development and global research perspectives for students, particularly graduate students, postdoctoral researchers, and/or early-career

researchers that enhance skills and leadership in international collaboration; and
- Protocols for communication, collaboration, decision-making, data management, intellectual property, shared-use infrastructure, and other network activities, facilities, or products that reduce the barriers to international collaboration.

C. Funding Tracks

NSF recognizes that some research networks will need time and resources to formulate networks of networks, while others are ready to implement networks of networks.

Design Track: This track will support design efforts for durations of up to 2 years, and for up to a total of $250,000, to enable networks to develop operational links among networks and to design collaborative approaches that would address knowledge gaps.

These awards are for networks linked by a common research theme that have preliminary ideas on how to develop the network of network characteristics described herein, but are at an early stage of project design (e.g., identifying research and professional development needs, priorities, and goals, developing partnerships and collaboration strategies).

It is not expected that projects be funded first in the Design track prior to being considered in the Implementation track.

Implementation Track: This track will support more established networks of networks for durations of 3 to 5 years, and for up to a total of $2 million, to implement coordination across networks on a research roadmap to advance theory, methods, tools, and/or integration across fields. These awards are to enable networks to coordinate research priorities and resources to address knowledge gaps and overcome research roadblocks.

These awards are for networks with an operational core of communication on a common research theme in the U.S. and abroad that already have (a) established an understanding of knowledge gaps across the networks, (b) compelling vision for how synergies across the networks would lead to new research directions and innovation in solution of complex problems, (c) developed scalable team science strategies and logistics, and (d) designed an organizational structure that supports collaborative involvement in leadership and broad participation in activities by network members.

Examples of supported activities to foster such connections include, but are not limited to, synthesis efforts to integrate and transfer knowledge, personnel exchanges, interdisciplinary international training, data exchanges, working groups, developing and disseminating products and practices, and the adoption of existing cyber tools to enable linkages between the U.S. network and counterpart networks in other countries or regions.

For both tracks, the program expects to make awards covering a range of budget requests, commensurate with the scale and scope of each project.

The proposed international networks of networks may vary in size and maturity, but a minimum of three research networks must be linked. These may include a combination of domestic, foreign, or inherently multinational research networks.

Proposers are encouraged to outline virtual, hybrid, or other alternative approaches to international collaboration that would enhance travel or substitute in the event travel is not undertaken.

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 clear research area to give coherence to the international collaboration and integration of complementary expertise. Proposed research themes must be grand challenges that are either (a) identified by the research community as priorities for transformative discoveries or (b) specified in NSF initiatives such as the NSF Big Ideas or in active program solicitations. Projects that focus, not on advancing scientific discovery but rather, on expanding operations or building capacity abroad are not appropriate for this call.

Proposers are highly encouraged to contact a cognizant Program Director prior to submission.

E. Hallmarks of Successful Proposals

1. Design proposals must demonstrate a clear path toward development of a network of networks. Proposed activities must engage with the challenges involved in meeting the program goals described above and engage students and early-career researchers in the identification of knowledge gaps and professional skills for participation in international network of network.

2. Implementation proposals must include network coordination and management plans that enable effective network of networks engagement. The organizational and leadership structure should ensure involvement across the networks.

3. The proposal should tackle a research theme that has high potential to engender substantial research advances and clearly articulate the added value of the network of networks. The potential for advances beyond existing efforts should be evident in a careful consideration of research needs and/or gap assessment.

4. The proposal must leverage prior investments in research, training, infrastructure resources and demonstrate new synergies. It is expected that project teams will be knowledgeable about and leverage domestic and foreign investments in the collaborative effort for mutual benefit.

5. Network of networks structure and activities must be open and designed to be in service to the research community broadly defined. Plans should be informed by the science of team science and support diverse network members in efforts to advance the field.

6. Broadening participation must be inherent to the project. All projects are expected to explain how project participation will be diversified and broadened as part of their Broader Impacts activities. As part of its commitment to broadening participation, NSF encourages proposals from a diverse range of proposers, including members of underrepresented groups such as women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM).

III. AWARD INFORMATION

Design Awards: total budget up to $250,000 for up to 2 years

Implementation Awards: total budget up to $2 million for 3 - 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 Design or Implementation.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

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

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov. The Prepare New Proposal setup will prompt you for the program solicitation number.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov*. The complete text of the *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: (https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov.

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.

The guidance below augments the general guidance provided by the PAPPG.

In the case of proposals involving more than one organization, submission of a collaborative proposal from multiple organizations, as described in the Proposal & Award Policies & Procedures Guide, is no longer accepted in this solicitation. A single organization must be identified as the lead, and a single proposal describing the entire project must be submitted by that organization. Funds may be distributed among partner organizations via subawards from the lead organization. A budget on the standard NSF budget format should be submitted for each subawardee. The requirement for a single organization to submit the sole proposal for a project is designed to facilitate effective coordination among participating organizations and avoid difficulties that ensue in funded projects when individuals change organizations and/or cease to fulfill project responsibilities.

The international cooperative activities box on the Cover Sheet must be checked and proposers must indicate the country or countries involved. AccelNet funds will support U.S. organizations 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. List foreign collaborators as “Unfunded Collaborators.”

The full proposal must include the main documents and supplementary documents described below, as appropriate for each track.

Results of Prior Support. This section is **NOT** required for either Design or Implementation proposals.

Design Track

Title: An informative title for the proposed project must begin with "AccelNet-Design:".

Project Summary (maximum 1 page): The Project Summary consists of an overview of a rationale for linking research networks on the chosen research theme and the planned foundational activities to form a network of network. Both NSF merit review criteria (Intellectual Merit and Broader Impacts) must be addressed in separate statements.

Project Description (maximum 15 pages): In addition to the content specified in the PAPPG, including the requirement for a separate section labeled "Broader Impacts", the Project Description must contain the following:

- **Research Theme and Goals:** Describe the research theme of the networks and the overarching goals of the proposed network of networks. Document that the research community and/or NSF views the area as a research grand challenge by including citations of reports or articles, and/or references to NSF program calls, as appropriate.
- **Design Activities:** Describe how members of the core networks will interact to explore and develop plans to form operational links between networks, to collaboratively identify knowledge gaps and ways to leverage existing resources, and identify new resources and coordinate efforts that would be

needed to meet the project goals. Describe the intended processes to establish agreements among network members on decision-making, including on matters related to the integration of personnel and resources. Describe plans to engage students, postdoctoral scholars, and early-career researchers in the identification of (a) knowledge gaps central to the project research theme, and (b) professional skills central to participation in the international network of networks. If pilot tests of professional development activities are planned, include plans to assess these.

- **List of Networks:** List the core networks and network members who will participate; this list is limited to no more than 10 named individuals/organizations. In addition to the PI, any co-PIs, and all potentially participating senior personnel, include foreign collaborators by full name and note their organizational affiliation, their network affiliation(s), and roles related to the proposed project. Note whether they have confirmed participation in the design activities, including any workshops. This list is in lieu of any letters of collaboration.

Budget: Travel for participants, whether domestic or foreign network members, should be included in the budget. Proposers should budget funds for up to four representatives to attend an annual meeting for awardees at NSF. No funds may be used to support research by students or faculty.

Implementation Track

Title: An informative title for the proposed project must begin with "AccelNet-Implementation:".

Project Summary (maximum 1 page): The Project Summary consists of an overview of the research theme, rationale for the proposed network of networks, a description of the scope and scale of the participating networks, and anticipated products and outcomes. Both NSF merit review criteria (Intellectual Merit and Broader Impacts) must be addressed in separate statements.

Project Description (maximum 15 pages): In addition to the content specified in the PAPPG, including the requirement for a separate section labeled "Broader Impacts", the Project Description must contain the following:

- **Theme, Rationale, and Goals (Limit 3 pages):** Describe the intellectual focus of the proposed network of networks, addressing the need, opportunity, and urgency. Document that the research community and/or NSF views the overarching research theme as a research grand challenge by including citations of reports or articles, and/or reference to an NSF program call, as appropriate. Explain how the proposed network of networks relate to existing efforts and research frameworks, and how it adds value. Clearly articulate the identified knowledge gaps and the conceptual, methodological, and/or technological advances needed to advance the field. Outline the project goals.
- **Participating Networks, Resources, and Synergies (Limit 4 pages):** Describe the scope, level of formality, size, and maturity of the participating networks, and the connections in their current state. Indicate the complementarity and the novel synergies that links across the domestic and foreign networks will create. Identify the research and educational resources, including infrastructure, sites, tools, data, or other resources and protocols, to be leveraged and recombined in new ways to bring about the needed research transformation.
- **Network of Network Activities (Limit 3 pages):** Describe the planned activities to address knowledge gaps and enable scientific integration and innovative collaboration in the research theme. Proposed activities should be broadly open to members of the participating research networks, rather than benefiting primarily individuals from the submitting organizations. A description of the substantive and concrete products and outcomes that the proposed project aims to deliver by the end of the award should also be included. Include a timeline of activities, expected outcomes and milestones. Discuss how the network of networks would be completed, transformed, or sustained, as appropriate, once the period of NSF funding has ended. This should include a plan for the transition from network coordination activities to research projects.
- **Student and Early-Career Professional Development (Limit 3 pages):** Describe the proposed activities and opportunities within the network of networks to build professional skills and global research perspectives of students, particularly graduate students, postdoctoral scholars, and early-career researchers. These activities should be directly connected with the international collaboration of the networks of networks, such as international exchange programs or other substantive international research experience across network partners. This is not meant to be support for students conducting individual research at their home institution, but to provide professional development to enhance skills in international research collaborations. Estimate the number of individuals who will be involved, and include plans for the selection and mentoring of students and postdoctoral scholars and for the selection and leadership opportunities of early-career researchers. Describe the plans to increase diversity, broaden participation, and encourage the involvement of underrepresented groups, including engaging participants at a diverse range of institutions. Position the student and early-career development and broadening participation plans with respect to the literature of what is currently known to be effective.
- **Evaluation (Limit 2 pages):** Describe plans for the assessment of the proposed network of networks, including progress toward the goals of the linked networks and metrics on the networks themselves. Include metrics and milestones that would support periodic objective assessment and demonstrate alignment of the activities with the project goals. Describe plans for assessing the professional development activities and tracking, over the life of the linked networks, the career development of participating graduate students and postdoctoral scholars.

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, with appropriate funds for project coordination and administration. The proposed budget should be consistent with the costs for the network of networks' partnership building and the scope of the participants served by the networking and professional development activities. The budget allocation must reflect the intent of the network of networks to be in service to the research community and benefit students and scientists affiliated with organizations beyond the submitting organization(s).

Proposers should budget funds for up to four network representatives to attend an annual meeting for awardees held at NSF.

Funds may be requested to promote collaborative activities, such as exchange of students, postdoctoral researchers, or faculty, travel expenses for U.S. 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 support of workshops uniquely tied to the activities that link networks. Exchanges between domestic networks may be included only if international network members are also traveling to the domestic exchange site.

Implementation proposals may include funds to support collaborative, exploratory research projects among participants if targeted for students, postdoctoral researchers, or early-career researchers. These projects should be international in nature and under 15% of the total budget. Funds requested for the collaborative, exploratory projects may include stipends, research supplies, and related logistical/other expenses.

Full-time graduate research assistant support or their tuition fees are not allowed.

Travel and related costs for network participants to participate in professional development activities may be included as Participant Support Costs, when consistent with PAPPG Chapter II.C.2.g.(v).

As NSF funding predominantly supports U.S. participants, network participants from organizations outside the U.S. are encouraged to seek support from their respective funding organizations, notably participants from developed countries. SF funds may not be used to support the expenses of the international scientists and students at their home organization.

Facilities, Equipment, and Other Resources: Proposers to both Design and Implementation tracks should provide a description of the facilities and major instrumentation that are available. 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. Note that inclusion of voluntary committed cost sharing is prohibited. The description should be narrative in nature and must not include any quantifiable financial information.

Special Information and Supplementary Documentation:

1. Network Coordination and Management Plan (up to 4 pages for Implementation proposals only)

Implementation projects must provide a supplementary document that describes the management plan for coordinating activities and outlines the personnel and resources involved across the domestic and international networks. This description should include organizational structure, governance model, plans for internal communication, and specific coordination mechanisms that will enable cross-network integration.

Include an organizational chart. Define the specific roles and responsibilities of the PIs, co-PIs, other Senior Personnel, and paid consultants at all organizations involved, as well as unfunded collaborators with roles in the leadership, coordination, training, dissemination, and assessment activities.

Describe how the network of networks plans to share (within and outside the network of networks) information, data, tools, and resources that will result from the activities, regardless of the source of support. This description should address open data sharing, publication of results, copyright or intellectual property protection, software ownership, equipment sharing, communication of outputs, and articulation agreements, as appropriate. Include a description of the processes and/or agreements that may already be in place as well as those planned to address intellectual property rights, authorship, and conflict resolution, and strategies for assessing and mitigating scientific, technical, and management risks.

2. Data Management Plan (2-page maximum for both tracks)

A comprehensive data management plan that addresses data sharing standards in the field(s), leverages existing NSF infrastructure, where appropriate, and conforms to the NSF policy on dissemination and sharing of research results as well as any educational products is required. The data management plan should describe whether new data products will be produced. It should articulate how data, software, models, and other resources will be stored, accessed, and shared across the networks, including 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);
- plans for archiving data, samples, and other research products, and for preservation of access; and
- as needed address possible differences between U.S. and applicable non-U.S. data protection requirements.

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 (1-page maximum for both tracks)

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 (maximum of 10 letters for Implementation proposals only): Each Letter of Collaboration must not exceed 1 page in length. NSF recognizes that networks may need to explain in more detail how the proposed collaboration will meet their needs and goals, particularly with relation to the research focus of the communities they represent. Therefore, letters of collaboration from partnering networks may deviate from the PAPPG-specified format to document the nature of the collaboration. The letter, which must not exceed 1 page in length, should include the signatory's role in the partnering network as well as the network representative's role in the proposed network of networks.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

C. Due Dates

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

  January 04, 2021

  FY 2021 Competition

  October 13, 2021

  October 11, 2022

  October 09, 2023

  Second Monday in October, Annually Thereafter

D. Research.gov/Grants.gov Requirements

For Proposals Submitted Via Research.gov:

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at: https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationandSubmission.html. For Research.gov user support, call the Research.gov Help Desk at 1-800-673-6188 or e-mail rgov@nsf.gov. The Research.gov Help Desk answers general technical questions related to the use of the Research.gov system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

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

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

application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

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

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

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

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

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

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

1. Merit Review Principles

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

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

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

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

2. Merit Review Criteria

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

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.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 other underrepresented groups in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

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

Additional Solicitation Specific Review Criteria

Design Track

1. How well does the proposal incorporate activities and network representatives likely to lay the foundation for a viable network of networks in a scientific grand challenge area? Are the plans to engage students, postdoctoral scholars, and early-career researchers in the identification of knowledge gaps central to the project research theme and identification of professional skills central to participation in international networks of networks well-conceived?

Implementation Track

1. Is the network coordination and management plan well-organized, optimally configured, and based on a sound rationale? Is the organizational and leadership structure laid out, with well-justified roles and strategies to overcome barriers to collaboration? Is the network of networks likely to effectively engage broad participation in service to the research community?

2. Does the Management Plan meet standards of best practices, including further consideration of how the data management plan anticipates additional needs given the scale and scope of activities required for a network of networks? Is there appropriate expertise in data science to identify and secure necessary resources/infrastructure as the network of networks expands and evolve?

3. What is the potential of the proposed network of networks to prepare the next generation of U.S. students, particularly graduate students, postdoctoral researchers, and early-career researchers to conduct and lead international multiteam science and engineering? Are the proposed professional development activities informed by the literature and likely to achieve the desired experiences, outcomes, and impact?

4. How well do the domestic and international networks capitalize on existing investments and substantially leverage facilities, sites, and/or resources for mutual benefit to create compelling novel synergies? Are the synergies likely to enable advances in addressing grand research challenges and to be achieved through true intellectual collaboration with foreign collaborators?

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 or the Division of Acquisition and Cooperative Support for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

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

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov.

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

Administrative and National Policy Requirements

Build America, Buy America

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

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

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

Additional Reporting Requirements

AccelNet awards require the following additional reporting requirements. These requirements are currently undergoing the information collection review process and the clearance number will be included with the reporting requirements. For updated information, PIs are encouraged to contact the cognizant NSF Program Officer listed in the award notice.

In Annual Reports, AccelNet PIs will be required to provide information (location traveled to, duration of stay, research/education activity undertaken) for all participants, noting their career stage.

In addition to the standard reporting requirements, AccelNet PIs must include information on:

- International collaborators (country, affiliation, title, career stage);
- International location(s) visited, duration of stay, and research activity undertaken by all participants, noting the career stage of each participant; and
- Metrics of success demonstrating progress towards achieving the specific project goals, and the goals of the AccelNet program overall.

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:

- Kershed P. Cooper, ENG/EMMI, telephone: (703) 292-7017, email: khcooper@nsf.gov
- Kwabena Gyimah-Brempong, SBE/SES, telephone: (703) 292-7466, email: kgimahb@nsf.gov
- Bruce K. Hamilton, ENG/CBET, telephone: (703) 292-8320, email: bhamilto@nsf.gov
- Kara C. Hoover, OD/OISE, telephone: (703) 292-2235, email: kchoover@nsf.gov
- Karen R. Lips, OD/OISE, telephone: (703) 292-5133, email: klips@nsf.gov
- Bogdan Mihaila, CISE/OAC, telephone: (703) 292-8235, email: bmihaila@nsf.gov
- Paul Raterron, OD/OISE, telephone: (703) 292-8710, email: praterro@nsf.gov
- Mangala Sharma, GEO/AGS, telephone: (703) 292-4773, email: msharma@nsf.gov

- Robyn Smyth, BIO/DEB, telephone: (703) 292-2996, email: rsmyth@nsf.gov
- Ralph F. Wachter, CISE/CNS, telephone: (703) 292-8950, email: rwachter@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** (NSF Information Center)**:** (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

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

  or telephone: (703) 292-8134
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by 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
Policy Office, Division of Institution and Award Support
Office of Budget, Finance, and Award Management
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