

# Partnerships for International Research and Education (PIRE) Use-Inspired Research Challenges on Climate Change and Clean Energy

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## PROGRAM SOLICITATION NSF 22-546

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### REPLACES DOCUMENT(S): NSF 16-571

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#### National Science Foundation

Office of International Science and Engineering

Directorate for Biological Sciences

Directorate for Computer and Information Science and Engineering

Directorate for Education and Human Resources

Directorate for Engineering

Directorate for Geosciences

Directorate for Mathematical and Physical Sciences

Directorate for Social, Behavioral and Economic Sciences

Office of Integrative Activities

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

February 08, 2022

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

March 25, 2022

## IMPORTANT INFORMATION AND REVISION NOTES

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This solicitation has been revised in multiple ways.

- Elimination of the limitation of one proposal per institution.
- Elimination of preliminary proposal requirement.
- Limitation on the number of proposals per PI.
- Letter of Intent is now required.
- Broadening of institutional eligibility.
- NSF-led international partnerships with counterpart agencies abroad have not been included.
- Focus on use-inspired basic research on significant societal challenges related to climate change and/or clean energy with stakeholder engagement and catalyzing international teams for readiness for potential larger-scale interdisciplinary research opportunities.
- Smaller expected award size and shorter project duration, reflecting the focus on catalyzing readiness for larger scale interdisciplinary use-inspired research to address a societal challenge of international scale related to climate change or clean energy.

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

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### General Information

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#### Program Title:

Partnerships for International Research and Education (PIRE)  
Use Inspired Climate Change and Clean Energy Research Challenges

#### Synopsis of Program:

This PIRE competition invites visionary, ambitious, interdisciplinary, use-inspired research proposals that address scientific

### challenges related to climate change and/or clean energy.

Many cutting-edge research questions require international collaboration to achieve important advances. They also require insights from diverse disciplines to address the full complexity of the research, as well as active participation of stakeholders outside of academia to ensure research findings connect to real-world solutions to societal challenges related to climate change and/or clean energy. Climate change and clean energy research teams that incorporate some of these characteristics are increasingly common, but many have not had the opportunity to fully integrate all elements into their research agenda. This PIRE program invites PIs to develop these partnerships to exploit their full potential in the future.

**The projects will utilize multi-stakeholder and international partnerships that are essential to address these challenges of critical societal importance at a regional or global scale. The research areas may include any combination of the natural and physical sciences, engineering, and the social sciences. Proposals that advance understanding of the human and behavioral aspects of climate change and/or clean energy challenges are encouraged. Educational activities should be integral to the project. Only high caliber research proposals that require international collaborations and show a clear potential for rapid scale-up and growth will be considered. Proposals that could be submitted to regular disciplinary and interdisciplinary programs at NSF will be returned without review.**

**Proposals must clearly and succinctly address the following requirements. Note that reviewers will be asked to comment on how well these points are addressed in the submitted proposals.**

- What is the societal challenge of global importance to be addressed?
- What is the novel scientific challenge of the proposed research? How will the proposed project utilize inter-, multi-, trans-disciplinary approaches and/or convergence approaches to address the science challenge?
- What is the proposed use-inspired nature of the research?
- Why is the international partnership required, who are the partners, what are their contributions and roles in the project?
- What is the role of multi-sector and multi-stakeholder partners included (including but not limited to academia, private sector, public sector, philanthropies, etc.) in the proposed PIRE project?
- How will diversity, equity and inclusion be integrated into the research and education effort?
- What is your vision and strategy for growth, scaling up and expanding the research beyond the PIRE project period?

The PIRE projects are expected to be driven by a bold vision for high-impact use-inspired basic research along with a strategy to leverage the PIRE opportunity to integrate diverse perspectives from different disciplines, international partners, and stakeholder groups into the research. It is expected that this effort will enhance societal benefits and increase potential to scale up and expand the partnerships beyond the PIRE funding period, catalyzing center-level activities in the future.

Awards are intended to support a combination of research and readiness-building that fully integrates a diverse set of partners into the research agenda, regularly engages relevant stakeholders and adapts the research to incorporate relevant insights. Education efforts are expected to play an integral role in this effort, and both research and education plans are expected to reflect intentional effort to advance diversity, equity and inclusion in science and engineering.

It is envisioned that PIRE funded projects will demonstrate readiness to scale-up and expand their partnerships to compete successfully for support to undertake center-scale activities and to serve as enduring international hubs of research excellence that advance knowledge, empower communities, and generate discovery and innovative technological solutions at a regional or global scale.

U.S. PIs are encouraged to work with their foreign collaborators to secure additional funding from the foreign agencies and build partnerships with other potential donors, including but not limited to private parties, foundations, industry, etc.

### 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.*

- Maija Kukla, telephone: (703) 292-4940, email: [PIRE-info@nsf.gov](mailto:PIRE-info@nsf.gov)
- Fahmida N. Chowdhury, telephone: (703) 292-4672, email: [PIRE-info@nsf.gov](mailto:PIRE-info@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

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**Anticipated Type of Award:** Standard Grant

**Estimated Number of Awards:** 10 to 15

**Pending the availability of funds.**

**Anticipated Funding Amount:** \$15,000,000

**Award size is expected to be up to \$1.5 million in total over 3 years.**

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

## Eligibility Information

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### 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.

### 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 be listed as a PI or co-PI on no more than one proposal submitted in response to this solicitation. An Individual may be listed as Other Senior Personnel, consultant or lead of a subaward on no more than three proposals in total, including no more than one as PI or co-PI. Proposals exceeding the limit for any person will be returned without review in the reverse order received.

## Proposal Preparation and Submission Instructions

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### 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=papppg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=papppg).
  - 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=papppg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=papppg).
  - Full Proposals submitted via Grants.gov: *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov* guidelines apply (Note: The *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)).

### B. Budgetary Information

- **Cost Sharing Requirements:**

Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:**

Not Applicable
- **Other Budgetary Limitations:**

Not Applicable

### C. Due Dates

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

February 08, 2022
- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):

March 25, 2022

## Proposal Review Information Criteria

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### 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

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### Award Conditions:

Standard NSF award conditions apply.

### Reporting Requirements:

Standard NSF reporting requirements apply.

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## I. INTRODUCTION

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Recognizing the critical value of international partnerships in today's world to advance research in addressing both research and global societal challenges, this PIRE competition intends to support a set of cutting-edge interdisciplinary awards focused on use-inspired research on climate change and/or clean energy in which advances require international collaboration. PIRE awards aim to strengthen team readiness to grow into prominent enduring international hubs of research excellence that advance knowledge, empower communities, and generate discovery and innovative technological solutions at a global scale.

Successful proposals will be driven by a bold vision for high-impact use-inspired research along with a clear strategy to leverage the current PIRE opportunity to integrate diverse perspectives from different disciplines, international partners, and stakeholder groups into the research. They are expected to demonstrate the potential to scale up and expand their research by enhancing and building partnerships beyond the PIRE funding period, catalyzing readiness to grow to center-level activity in the near future.

International engagement is increasingly critical to keeping the U.S. globally competitive at the frontiers of knowledge. As science and engineering expertise and infrastructure advance across the globe, it is expected that the U.S. will greatly benefit from international collaborations and a globally engaged workforce that will lead to transformational science and engineering breakthroughs. Therefore, PIRE will promote cooperation among scientists and engineers from all nations.

PIRE awards enable research at the leading edge of science and engineering by facilitating partnerships with others nationally and internationally, by educating and preparing a diverse, world-class STEM workforce, and by fostering institutional capacity for international collaboration. The partnerships should also enhance diversity, equity and inclusion in both research and education. Education efforts are expected to similarly reflect the impact of this effort.

## II. PROGRAM DESCRIPTION

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### A. PROGRAM OBJECTIVES:

1. Support excellence in interdisciplinary use-inspired climate change and/or clean energy research and education through international collaboration and multi-stakeholder engagement.
2. Promote opportunities where international collaboration can provide unique advantages of scope, scale, flexibility, expertise, facilities, or access to phenomena, enabling advances that could not occur otherwise.
3. Engage and share resources and research infrastructure within and across institutions to build strong international partnerships.
4. Engage multiple partners and stakeholders to empower them to solve urgent societal challenges at the global scale.
5. Create and promote opportunities for students and early career researchers to participate in substantive international research experiences and enhance diversity, equity and inclusion in research and education.

### B. CHARACTERISTICS OF PIRE PROJECTS

PIRE use-inspired projects should present an ambitious research vision to address a societal challenge of global importance related to climate change and/or clean energy that requires international collaboration and multi-stakeholder engagement. These projects are interdisciplinary, integrate research and education, and clearly demonstrate their potential for rapid growth through adding new partners and expanding or scaling up their research, becoming prominent international centers of excellence. Anticipated results and milestones are expected for both research and implementation of the strategy for the project growth.

PIRE projects may exhibit diverse forms of organization, collaboration, and operation suited to their individual needs. PIRE projects must include collaboration with international research partners and provide meaningful research experiences for students to be directly involved in international collaboration.

NSF is committed to the principles of diversity and inclusion and expects PIRE projects to involve groups traditionally underrepresented in science and engineering at all levels (faculty, students and postdoctoral researchers). PIRE teams are strongly encouraged to propose research to address societal challenges that disproportionately impact groups traditionally underrepresented in science and engineering in the U.S. and abroad, engaging stakeholders from

impacted groups as key partners in the research process. Underrepresented groups include women, persons with disabilities, Blacks and African Americans, Latinos and Hispanic Americans, Native Americans, Alaska Natives, Native Hawaiians and other Pacific Islanders. Increasing the participation of a diverse U.S. citizenry by creating opportunities and enabling them to contribute is essential to the health and vitality of science, engineering, and education.

### **C. PRINCIPAL INVESTIGATOR**

The Principal Investigator (PI) will be the director of the PIRE project. The PI is expected to provide intellectual leadership and to be an essential participant in research and related educational activities. The PI will have overall responsibility for the administration of the award, for the management of the project, and for serving as the main point of contact with NSF.

### **D. VISAS AND PERMITS**

PIs are responsible for obtaining any required visas for foreign travel and for providing documentation through the U.S. research institution in support of U.S. visas for foreign counterpart investigators. PIs are also responsible for obtaining research permits and import/export documents where necessary.

## **III. AWARD INFORMATION**

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**Award size is expected to be up to \$1.5 million in total over 3 years.**

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

## **IV. ELIGIBILITY INFORMATION**

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### **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.

### **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 be listed as a PI or co-PI on no more than one proposal submitted in response to this solicitation. An Individual may be listed as Other Senior Personnel, consultant or lead of a subaward on no more than three proposals in total, including no more than one as PI or co-PI. Proposals exceeding the limit for any person will be returned without review in the reverse order received.

### **Additional Eligibility Info:**

**Institutions holding current PIRE awards are also eligible to apply.**

## **V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS**

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

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#### **Letters of Intent (required):**

Letters of Intent are required and must be submitted via FastLane or Research.gov even if full proposals will be submitted via Grants.gov.

The Letter of Intent should include this information:

#### 1. Project Information

##### i) Synopsis (2500 characters)

Explain/describe the global societal challenge that the proposed climate change and/or clean energy research will address. What is novel or unique about the proposed interdisciplinary research approach and why would this work?

##### ii) Other Comments (2500 characters)

Explain/describe why the international partnership is required. What will the international partners will bring to the project and how will they benefit from participation in this PIRE project?

## 2. List Participating Organizations

### Letter of Intent Preparation Instructions:

When submitting a Letter of Intent through FastLane or Research.gov 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.
- A Minimum of 0 and Maximum of 20 Other Participating Organizations are permitted
- 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](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg). Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov). 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](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg). Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov). The Prepare New Proposal setup will prompt you for the program solicitation number.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov*. The complete text of the *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: ([https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov).

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.

**Proposals should include the components described below. Consider these important notes.**

- Proposals that exceed the specified page limitations given below will be returned without review.
- No additional information may be provided by links to web pages.
- Collaborative proposals are not allowed in this PIRE competition. PIRE proposal must be submitted as a single integrated proposal by the lead university/institution, with proposed sub awards to the other partner institutions. Separate proposals from each partner will not be accepted.
- U.S. Principal Investigators should strongly encourage their foreign collaborators to secure their own funding, consult their funding agencies to determine whether they are eligible to submit a proposal, and the agency submission requirements. NSF policy on foreign funding can be found in the PAPPG, Chapter I.E.6.
- If the project involves human subjects, the Institutional Review Board (IRB) of the submitting organization must certify that the proposed project is in compliance with the Federal Government's "Common Rule" for the protection of human subjects. IRB information will be required before an award can be made. For more information regarding the protection of human subjects, consult <https://www.nsf.gov/bfa/dias/policy/hsfaqs.jsp>.
- If the project involves the use of vertebrate animals, the project must be approved by the submitting organization's Institutional Animal Care and Use Committee (IACUC) before an award can be made. For more detail, see PAPPG Chapter II.D.4.
- PIs proposing work in the Arctic or Antarctic Polar Regions should contact the Office of Polar Programs program officer associated with the program most closely aligned with the proposed research for guidance on submission (<https://www.nsf.gov/div/index.jsp?div=OPP>).
- PIs proposing research that requires access to research vessels are encouraged to check general information at [https://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=191729&org=OCE](https://www.nsf.gov/news/news_summ.jsp?cntn_id=191729&org=OCE).

### 1. COVER SHEET:

- Identify the proposed Project Director as the Principal Investigator.
- Although NSF recognizes that international collaborators play an integral role in partnerships, list only participants as PI or co-PIs affiliated with U.S. institutions.
- Check the international cooperative activities box and select the countries involved from the pull-down list.

### 2. PROJECT SUMMARY (1 page maximum):

- The Project Summary must consist of an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity (for additional instructions, see the PAPPG).
- Provide a clear and concise description of the project, including the research vision and goals.
- Indicate the unique opportunities that the international partners bring to the project.
- Write a summary that is informative to those working in the same or related fields and, as far as possible, understandable to a scientifically or technically literate lay reader.

### 3. PROJECT DESCRIPTION (20 page maximum):

In addition to the requirements contained in the PAPPG, the guidelines below must be followed. Note that the 20-page maximum includes the PAPPG required section labeled "Broader Impacts", Results of Prior NSF Support, and all tables, figures, and other graphical data. Program Objectives (section II.A. above) should be considered in items a) through e) below.

#### a) Research:

Describe the research vision, goals of the project, scientific and technical approaches, with expected outcomes and milestones. Illustrate how the proposed use-

inspired research represents important advances achievable only through international collaboration. In your project description, clearly explain:

- **What is the societal challenge of global importance to be addressed?**

What aspects of climate change and/or clean energy will your project address? Comment on the urgency of the issue and its relevance to US and global challenges. How will the interdisciplinary use-inspired research approach involving multi-stakeholder partnerships support the ability of your team to effectively advance research and have meaningful impacts on the societal challenge?

- **What is the scientific challenge (including excellence and novelty) of the proposed research? How will the proposed project utilize inter-, multi-, trans-disciplinary approaches and/or convergence approaches to address the science challenge in question?**

Briefly describe the state-of-the-art in the field of the proposed research and identify the research challenge you will focus on in your project. What is novel and cutting edge in your research approach and why is it likely to work? Explain what transformative changes are anticipated.

- **What is the proposed use-inspired nature of the research (connection to practical use, economics, and growth)?**

Describe the motivation for and essential aspects of your use-inspired research. Explain how anticipated research advances are expected to be relevant to practical outcomes that address the societal challenge at the heart of your proposal. Highlight anticipated pragmatic impacts of the research on project stakeholders and/or communities in the U.S. and in partner countries.

#### **b) International collaborators and other partners:**

Explain how international collaboration and multi-sector partnerships will be integrated into the overall research plan. In your description, clearly explain:

- **Why is the international partnership required? What are partners contributions and roles in the project?**

Who are the international collaborators and why are they involved in the project? Explain why this research requires international collaborations. Highlight specific and unique contributions (e.g., expertise, facilities, sites, data, approaches/methods, opportunities, etc.) of each international partner. Explain how international researchers, students and their organizations are integrated in the PIRE project and emphasize the expected benefits for the US and international partners.

- **What different stakeholder partners are included in your proposal (including but not limited to academia, private sector, public sector, community groups, philanthropies, etc.) and what are their roles in the PIRE project?**

Identify who the partners from different sectors are and explain why they are included. How will their involvement help you grow your research and transform it into a larger effort?

#### **c) Educational Activities:**

- **What training and/or educational activities are required to address the science challenge in question and what are your plans?**

Clearly identify what training and/or educational approaches or methodologies are required for your project. Highlight innovative educational approaches, tools, or technologies. How will these approaches be suitable for training the next generation of a globally engaged workforce? Broadening participation of members of under-represented groups, empowering under-served communities, and collaborating with PUI and other non-research intensive colleges and universities is especially encouraged. Comment on how you will measure your success in teaching/learning.

#### **d) Management Plan:**

Describe the overall structure of the partnership; communication plans; coordination of data and information flow; allocation of funds and personnel; and other specific issues relevant to the management of the proposed activities. Effective integration of all partners into the project effort is considered integral to success and ultimately to scalability. Clearly explain:

- **What is your strategy for team integration? How does your project plan for project growth, scaling up and expanding research and including new partners beyond initial NSF PIRE funding?**

Present a strategy that will allow for effective management of the research and educational components of the project, including integration of all partners and stakeholders into a well-functioning team; relevant collaborative governance and management; procedures to phase research aspects in and out of the project; plans for bringing in new partners and scaling the research up. Identify your envisioned research and partnership needs to strengthen readiness to grow and develop your PIRE project into a larger multi-stakeholder use-inspired research effort. Describe how your project will prepare to expand, branch out, and scale up to achieve meaningful outcomes in addressing the societal challenge on climate change and/or clean energy through use-inspired research and partnerships.

**e) Results from Prior NSF Support** (5 page maximum): PI, co-PIs, and Senior Personnel who received NSF funding in the past five years must provide information on the prior award(s), and a summary of the results of the completed work, including accomplishments. The results must be separately described under two distinct headings, Intellectual Merit and Broader Impacts. Individuals who have received more than one prior award (excluding amendments) must report on the award most closely related to this proposal. Required information is described in the PAPPG.

**4. REFERENCES CITED:** Cite references relevant to both the research and educational plans, using the standard NSF format as per the NSF PAPPG

#### **5. BIOGRAPHICAL SKETCHES:**

- Include biographical sketches of U.S. PIs, co-PIs, and other Senior Personnel as well as for international collaborators.
- Prepare NSF standard biosketches, **including those for international collaborators**, in accordance with the **required NSF format**, as specified in PAPPG.
- Emphasize information helpful for understanding the strengths, qualifications, and specific impact the individual brings to the PIRE project.

**6. CURRENT AND PENDING SUPPORT:** Include current and pending support for the PI, co-PIs, and U.S. Senior Personnel.

**7. FACILITIES, EQUIPMENT and OTHER RESOURCES:** Describe available facilities and major instruments in both the U.S. and abroad in sufficient detail to allow assessment of the adequacy of resources available to perform the effort proposed.

**8. SUPPLEMENTARY DOCUMENTATION:** Proposals that do not include the required supplementary documents, or that include non-required documents, will be returned without review.

1. **Letters of Collaboration:** The following documents are required.



- o Letters of Collaboration: Include only official letters with specific commitments of resources from participating institutions, or organizations expected to receive subawards, or from organizations that will provide resources for the project. Letters are limited to two pages each.
  - o Letters from international partners or senior administrators expressing their intent to collaborate and describing the potential benefits of the project to their side of the partnership and the related support available through their institutions and funding mechanisms. These letters must clearly and concisely state 1) what infrastructure, resources, expertise etc. will be available to PIRE participants at the international site, 2) what particular roles the foreign collaborators will play in the PIRE project, and 3) how foreign collaborators and/or their organizations will benefit from participation in the PIRE project. This solicitation requires these descriptive letters of collaboration in lieu of the standard PAPPG language. Letters are limited to two pages each.
2. **Data Management Plan** (2 page maximum): Describe how data and information resulting from the proposed project will be managed with details on how data will be shared among partnering researchers and institutions.
  3. **Postdoctoral Researcher Mentoring Plan** (1 page maximum): If the project requests funding to support any postdoctoral researcher(s), the proposal must include a description of mentoring activities that will be provided for such individuals.
  4. **Foreign Partner(s) Proposal or Funding Information**: PIRE proposals should provide information on the proposed support available for foreign partners, including the name of the counterpart agency or agencies.

## B. Budgetary Information

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### Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

### Budget Preparation Instructions:

#### Budget Justification:

- A Budget Justification should be provided. A careful and realistic budget that is consistent with the proposed activities will add to the overall strength of a proposal.
- Explore use of off-campus indirect cost rates whenever appropriate. Provide indirect cost rate calculations and the basis to which both on campus and off-campus rates apply.

**Required Costs:** Include costs of travel for project participants for one trip to the Washington, D.C. area to participate in a **one-day orientation meeting at the beginning of the project** and a **1.5 day PIRE Grantees' meeting in year 2 of the award**.

#### Allowable Costs for NSF PIRE Budget:

- A significant portion of direct costs should fund U.S. students conducting collaborative international research-related activities.
- **Salaries, wages, and fringe benefits for postdoctoral scholars, other professionals, graduate students, secretarial-clerical, or administrative staff** who will perform dedicated work on the PIRE project.
- **Participant Support Costs:** Stipends, travel, subsistence and other costs of participation for any undergraduate students or K-12 teachers included in project activities should be included under Participant Support Costs. Stipends for undergraduate students should be budgeted at rates comparable to those in the Research Experiences for Undergraduates (REU) program ([https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5517](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517)) in addition to any travel and subsistence costs incurred while abroad. Travel, subsistence and other costs of participation in PIRE project meetings and workshops for faculty, researchers and students from non-grantee institutions (who are not included in subawards) should also be included under Participant Support Costs.
- **Travel:** Research-related travel support (i.e., airfare, lodging, meals, and incidental expenses). For living expenses abroad, applicants are encouraged to work with international counterparts to develop realistic budget requests. For example, access to university guest housing or similar facilities should be explored. Cost-effective arrangements should be made for individuals residing at the international site for extended periods and for projects involving on-going exchanges of short-term visitors.
- **Expenses related to project assessment:** Should include fees for internal or external evaluators. Costs should be limited to no more than 10% of total direct costs.
- **Other Direct Costs:** May include PIRE-specific items, for example, research and education communication linkages between institutions, language training, non-travel costs associated with coordination meetings, and preparation/orientation of students for living abroad.
- **Equipment:** PIRE is not intended to support the purchase, operation or maintenance of moderate to large equipment. Only limited equipment costs can be included.
- **NSF awards normally support the U.S. portion of the collaboration.** General NSF rules apply. Consult the PAPPG for details.

## C. Due Dates

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- **Letter of Intent Due Date(s) (required)** (due by 5 p.m. submitter's local time):  
February 08, 2022
- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):  
March 25, 2022

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

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### 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](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](mailto:fastlane@nsf.gov) or [rgov@nsf.gov](mailto: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](mailto:support@grants.gov). The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

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

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

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

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *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

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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

To be considered by PIRE reviewers:

#### 1. PIRE requirements

To what extent did the PI address all PIRE requirements described in this solicitation? Is the international partnership essential to the proposed project? Is the whole greater than the sum of its parts? Are the proposed partnerships meaningful and did the PIs explain roles and contributions of all partners engaged as well as what do they benefit from participation in the PIRE project?

#### 2. Project Management

Did the PIs clearly explain the management structure and strategy for the PIRE project? Does this strategy demonstrate potential to fully integrate all partners and stakeholders into an effective team and to allow for flexibility for the further development of the research project by expanding the research scope, branching out new research directions, scaling up the research effort or its outcomes, and by bringing in new partners? To what extent does the proposed project have the potential to rapidly grow into a larger research effort to become a prominent long-lasting international research hub? Is the research vision bold and far reaching to sustain the research well beyond the duration of this PIRE project?

## B. Review and Selection Process

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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

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### A. Notification of the Award

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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

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

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

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

### C. Reporting Requirements

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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](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

## VIII. AGENCY CONTACTS

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*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:

- Majja Kukla, telephone: (703) 292-4940, email: [PIRE-info@nsf.gov](mailto:PIRE-info@nsf.gov)
- Fahmida N. Chowdhury, telephone: (703) 292-4672, email: [PIRE-info@nsf.gov](mailto:PIRE-info@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](mailto:fastlane@nsf.gov)
- Research.gov Help Desk e-mail: [rgov@nsf.gov](mailto:rgov@nsf.gov)

For questions relating to Grants.gov contact:

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

## IX. OTHER INFORMATION

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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>.

Other useful information for submitting proposals to the PIRE Program is available on the [PIRE Home Page](#)

Other programs managed by the Office of International Science and Engineering include:

- AccelNet
- [International Research Experiences for Students \(IRES\)](#)

### Related Programs:

Investigators may also wish to view the Programs and Funding Opportunities section of the OISE home page <https://www.nsf.gov/dir/index.jsp?org=OISE> to view the lists of OISE Managed Opportunities and other NSF Opportunities that Highlight International Collaboration.

## ABOUT THE NATIONAL SCIENCE FOUNDATION

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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 (FASSED)* 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](mailto:nsfpubs@nsf.gov)
  - or telephone: (703) 292-8134
- **To Locate NSF Employees:** (703) 292-5111

## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton  
Reports Clearance Officer  
Policy Office, Division of Institution and Award Support  
Office of Budget, Finance, and Award Management  
National Science Foundation  
Alexandria, VA 22314

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