Arecibo Center for STEM Education and Research (ACSER)

PROGRAM SOLICITATION
NSF 23-505

National Science Foundation

Directorate for STEM Education
    Division of Equity for Excellence in STEM
    Research on Learning in Formal and Informal Settings
    Division of Undergraduate Education

    Office of Integrative Activities

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

    February 28, 2023

IMPORTANT INFORMATION AND REVISION NOTES

- For additional information regarding the solicitation, Arecibo Observatory site and facilities, and third-party site maintenance responsibilities, please visit the solicitation website accessible via https://beta.nsf.gov/funding/opportunities/arecibo-center-stem-education-research-acser.
- An informational webinar and virtual office hours will be held by the National Science Foundation. For event dates and remote connection information, please visit the solicitation website accessible via https://beta.nsf.gov/funding/opportunities/arecibo-center-stem-education-research-acser.

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 *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) that is in effect for the relevant due date to which the proposal is being submitted. The NSF PAPPG is regularly revised and it is the responsibility of the proposer to ensure that the proposal meets the requirements specified in this solicitation and the applicable version of the PAPPG. Submitting a proposal prior to a specified deadline does not negate this requirement.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

    Arecibo Center for STEM Education and Research (ACSER)

Synopsis of Program:

    The National Science Foundation (NSF) hereby solicits proposals for the establishment of the Arecibo Center for STEM Education and Research (ACSER) at the original site of the Arecibo Observatory (AO). NSF seeks to evaluate proposals that would transition the existing AO site to the new ACSER, shifting the disciplinary focus from primarily on the astronomical sciences to science, technology, engineering, and mathematics (STEM) education and research more broadly[1]. ACSER would serve as a hub for STEM discovery and exploration by building upon existing programs and opportunities currently in place at the AO site, while also creating and implementing new STEM education, research, and outreach programs and initiatives.

    The goals of ACSER would be to:

- promote STEM education, learning, and teaching,
- support fundamental and applied STEM and STEM education research,
- broaden participation in STEM, and
- build and leverage existing and new collaborations and partnerships.

    The re-imagined Center would have a significant role in modeling and advancing equitable and inclusive STEM education and research, especially in Puerto Rico and for individuals and communities underrepresented in STEM. ACSER would be poised to serve as a catalyst for increased and inclusive engagement in a broad range of STEM disciplines, cutting-edge research, and workforce development initiatives by students, teachers, researchers, local communities, and the public within and outside of Puerto Rico.

    NSF recognizes the scientific, educational, historic, cultural, and economic significance of the AO site to Puerto Rico and the global scientific community. Listed on the US National Register of Historic Places, the AO site is identified as a historic district worthy of preservation and

includes a Learning Center, a Visitor's Center and Shop, an auditorium, exhibition space, cafeteria, office space, and dormitories. This solicitation calls for proposals to manage the education, research, and outreach aspects of ACSER. A third-party contractor would be responsible for overall site maintenance.

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[1] Prior to reaching a final decision in response to this solicitation, NSF will need to complete any required environmental reviews.

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.

- Sonja Montas-Hunter, telephone: (703) 292-7404, email: acser@nsf.gov
- Monya A. Ruffin-Nash, telephone: (703) 292-4635, email: acser@nsf.gov

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

- 47.076 --- STEM Education
- 47.083 --- Office of Integrative Activities (OIA)

Award Information

Anticipated Type of Award: Cooperative Agreement

Estimated Number of Awards: 1

Cooperative agreement for a 5 year period.

Anticipated Funding Amount: $5,000,000

Estimated budget is subject to the availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the NSF Proposal & Award Policies & Procedures Guide (PAPPG), Chapter I.E. Unaffiliated individuals are not eligible to submit proposals in response to this solicitation

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Required:

For a single institution proposal (with or without subawards), the submitting institution must be a Hispanic Serving Institution (HSI), two- and four-year Institutions of Higher Education that satisfies the definition of an HSI as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a).

For collaborative proposals submitted by multiple organizations (see PAPPG, II.D.3.b), the lead institution or at least one non-lead institution (i.e., collaborative institution) on the proposal must be an HSI, two- and four-year Institutions of Higher Education that satisfies the definition of an HSI as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a).

All proposal submissions must include a HSI Designation Letter(s) provided by the Department of Education for the HSI institution(s) involved.

Submissions are strongly encouraged but not required from the following:

- **Established Program to Stimulate Competitive Research Jurisdictions (EPSCoR)**: EPSCoR jurisdictions; Proposals that include EPSCoR jurisdictions are strongly encouraged to explicitly state the value of including the EPSCoR jurisdiction(s) in the proposed work, including but not limited to, a brief statement on how the proposal aligns with at least one EPSCoR program goal. For more information on EPSCoR goals and its jurisdictions, please see https://beta.nsf.gov/funding/initiatives/epscor/state-websites.
- **Non-profit Organizations**: Independent museums and science centers, observatories, research labs, community-based organizations, professional societies and similar organizations in the U.S., especially in Puerto Rico, associated with educational or research activities.
- **Other Institutions of Higher Education (IHEs)**: Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the United States, acting on behalf of their faculty members.

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:

> There are no restrictions or limits.

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:**

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

C. Due Dates

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

    February 28, 2023

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:

Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements:

Standard NSF reporting requirements apply.

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I. INTRODUCTION

With this solicitation, The National Science Foundation (NSF) requests proposals to re-imagine the existing Arecibo Observatory site (AO) as the Arecibo Center for STEM Education and Research (ACSER). Housed in Arecibo, Puerto Rico, ACSER is envisioned as a global science, technology, engineering, and mathematics (STEM) enterprise, and a 'living lab' for inclusive and innovative experiential STEM research and education for individuals of all ages and all interests. Interactive stationary and traveling exhibitions, interpretative displays, cyber-enabled learning and engagement platforms, interactive STEM spaces or laboratories, field experiences for student and professional researchers, preK-12 school and after-school programs, and community-based events are exemplars of education, research, and outreach activities that might be supported and implemented by ACSER. The capacity to build upon and leverage new and existing partnerships and collaborations would also be critical for the success of ACSER. These networks would help to make important connections to areas of STEM interest for ACSER visitors and promote community among stakeholders such as communities and institutions of informal learning and higher education (IHEs) within Puerto Rico and provide a bridge for complementary entities in the mainland. Linkages and opportunities made through ACSER support NSF's overall strategy to develop the diverse and globally engaged workforce necessary to ensure that the United States is a global leader in science and engineering research and innovation. NSF anticipates that any award made in response to this solicitation would be at a maximum level of $5 million dollars over five years for the establishment of ACSER.

NSF recognizes the cultural and economic significance of the Arecibo Observatory to Puerto Rico, noting that the facility serves as an inspiration for many, leading to increased interest in and pursuit of education and research in STEM disciplines. The iconic 305-meter telescope was first built as an initiative of ARPA[2], and the ownership of AO was subsequently passed to NSF where it became a premier site for astronomical, atmospheric, and geospace research. In December 2020, the instrument platform of the 305-m telescope collapsed, rendering the telescope inoperable. Following the platform collapse, the AO site has continued to serve as a multi-functional space with a variety of interactive exhibits, audiovisual displays, and informative panels where visitors are exposed to substantive science and engineering concepts, specifically in basic astronomy, atmospheric science, and related research areas. **NSF seeks to transition the current facility to the Arecibo Center for STEM Education and Research, focusing on all areas of science, technology, engineering, and mathematics while leveraging educational and research programs made possible by this unique site.**

The AO site is situated on 140 acres of U.S. Federal Government-owned land near the town of Arecibo, Puerto Rico. As the largest municipality in Puerto Rico, the town of Arecibo includes over 18 barrios (i.e., districts), and is known for its collection of geographically diverse features such as caves, parks, beaches, lakes, waterfalls, and mountains. The Cambalache Forest Park in Arecibo is home to over 20 species of birds and more than a dozen caves. Two of Puerto Rico's most critical rivers, the Rio Grande de Arecibo and the Tananarive River, cross the Arecibo municipality. The area is also known for its distilleries and is a major producer of agricultural machinery and paper. Arecibo is 99% Hispanic and home to several cultural organizations, colleges and universities, and technical institutions. The AO site has been an integral hub for STEM within the Arecibo municipality and across the rich geographic, geological, biological, academic, and culturally diverse island.

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[2] https://www.darpa.mil/about-us/timeline/arecibo-observatory.

II. PROGRAM DESCRIPTION

NSF solicits proposals for the establishment of ACSER at the AO site. The focus of AO has always been scientific immersion and wonder. In its 50-year history, more than 100,000 visitors and researchers have engaged in the many opportunities afforded at the site, traditionally related to the astronomical sciences. Although the 305-m telescope is no longer operational, the site boasts numerous assets (e.g., laboratory space, visitor's center, lodging, etc.) that afford an opportunity to further expand the disciplinary focus at the site, including emerging areas of interest in STEM education and research. Given its historical significance and its importance to Puerto Rico, NSF is committed to the protection and evolution of AO by investing in meritorious ideas to leverage the site for STEM research, education, and public engagement in Puerto Rico and beyond.

ACSER would build and expand upon existing programs and opportunities currently in place on AO, while implementing new STEM education, research, and outreach activities and programs. It would engage pre-kindergarten - 12th grade students, undergraduate students, graduate students, postdoctoral scholars, educators/faculty, researchers, and interested communities in and outside of Puerto Rico.

Goals

The four primary goals of ACSER would be to:

- Promote STEM education, learning, and teaching.
- Support fundamental and applied STEM and STEM education research.
- Broaden participation in STEM.
- Build and leverage existing and new collaborations and partnerships.

Functions

There are also four primary functions of ACSER that would align with the above stated goals.

- Engage the public in STEM through education and outreach activities.
- Develop and implement a research and workforce development program.

- Support participation of individuals from underrepresented groups in STEM education and research.
- Cultivate and build authentic partnerships within and outside of Puerto Rico.

Proposals must address each function detailed below and clearly articulate how each is being addressed.

1. Promote public engagement in STEM through education and outreach activities

An informed citizenry is essential and of national importance in the promotion of STEM. Informed public awareness about scientific phenomena and critical issues in STEM helps people to better understand the world around them, to think critically and creatively, and to make well-reasoned judgments and decisions that maintain U.S. global competitiveness. Research continues to show sustained high levels of public trust in science centers and museums as sources of information.[3] The role of ACSER would be significant in public engagement in STEM.

Wide latitude is given to proposers in designing appropriate education and outreach programs and initiatives for ACSER. Proposed activities should be grounded in evidence-based practices and sound programmatic approaches that are clear and well-defined with measurable goals and objectives. Proposed activities must be feasible, logical, and comprehensive, with the intention of increasing STEM educational experiences and outreach for individuals and communities, especially in Puerto Rico and including those underrepresented in STEM fields. These activities might include preK-12 school field trips or visits, summer/after-school programming, stationary and traveling exhibitions, interpretative displays, cyber-enabled learning and engagement platforms and experiences, interactive STEM spaces or laboratories, and community-based events.

Outcomes of the proposed activities should incentivize local and potentially regional community transformation, promote fundamental research on engaging student learning, diversify and effectively increase participation in STEM, and improve our understanding of how to build capacity for exemplary STEM education. Proposed activities should enhance the overall impact, knowledge base, influence, and reach of NSF's education, discovery, and training efforts in STEM education through research and practice.

2. Develop and implement a research and workforce development program

The site currently supports ongoing STEM research activities, including, but not limited to, NSF Research Experiences for Undergraduates (REU) and Research Experiences for Teachers (RET) programs. ACSER would leverage existing NSF-supported research and workforce development initiatives and create new opportunities that might include formal and informal STEM research opportunities for high school, undergraduate, and graduate students, postdoctoral scholars and STEM researchers and professionals, especially from groups underrepresented in STEM.

The ACSER research and workforce development program portfolio might include initiatives and research activities focused on: (a) STEM disciplinary and field research, (b) STEM learning or teaching, (c) program effectiveness, (d) visitor studies, (e) public participation in scientific research, (f) science of broadening participation, (g) STEM education research, and (h) emerging research topics of interest. Ongoing field research, student internships, summer residential research programs, public participation in research opportunities, and professional development for K-12 teachers and higher education faculty and professionals are exemplars of research and workforce development activities that might be facilitated by ACSER.

3. Support participation of individuals from underrepresented groups in STEM education and research

As articulated in the NSF Strategic Plan 2022-2026, NSF's vision is "a nation that leads the world in science and engineering research and innovation, to the benefit of all, without barriers to participation (pg. 9)." NSF values the knowledge, skills, abilities, experiences, and perspectives that individuals from different backgrounds bring to the scientific enterprise and strives to support this diverse representation in the broader national community. It recognizes and supports outstanding researchers and innovative thinkers from across the Nation's diversity of regions, organizations, and demographic groups.

ACSER would play a significant role in modeling and advancing equitable and inclusive STEM education and research. This is especially important for groups that continue to be underrepresented in STEM fields — including African Americans, Alaska Natives, American Indians, Hispanics, Native Hawaiians, Native Pacific Islanders, persons with disabilities, veterans, and women. Proposers should incorporate best practices into proposed activities for reaching and engaging diverse groups through culturally relevant and responsive practices. The voices, knowledge, perspectives, and experiences of those underrepresented in STEM should be integral, including in, for example: conceptualization of the proposal, project leadership and staff positions, research opportunities, program development and implementation, outreach activities, participation, decision-making processes, partnerships and collaborations, evaluative activities, and in the interpretation and dissemination of center activities and research. The proposed work should provide positive outcomes for the individuals and communities engaged.

Given its iconic nature, AO is uniquely positioned to significantly impact its local community and sustain and enrich Puerto Rico's vibrant STEM ecosystems and geographic diversity. Through this opportunity, ACSER seeks to create sustainable STEM opportunities, build and strengthen local STEM research through shared knowledge, amplify scholarly contributions of culturally diverse voices in Puerto Rico, and strengthen networks and collaboration in and outside of Puerto Rico.

4. Cultivate and build collaborations and partnerships within and outside of Puerto Rico

Diverse collaborations and partnerships can enhance the intellectual, economic, capacity, impact, and sustainability of ACSER. Diverse and strategic partnerships can also provide access to resources and opportunities to individuals and communities that might not otherwise have engaged in STEM activities. This is especially important in communities local AO and in Puerto Rico, which are predominantly Hispanic and underrepresented in STEM. A commitment to establishing and cultivating authentic partnerships with individuals and communities in Puerto Rico most impacted by inequities and a lack of access to STEM educational opportunities is important. Meaningful partnerships demonstrate evidence of authenticity by ensuring that each entity has an integral role and is actively engaged in all aspects of ACSER work, from the leadership to conceptualization and implementation. These collaborations and partnerships would likely create and strengthen STEM partnerships between the U.S. mainland and Puerto Rico through personally and professionally enriching STEM experiences.

Central to this function, ACSER partners and community stakeholders would assist in identifying and supporting research and education opportunities that enhance STEM awareness and workforce development. Opportunities, such as entrepreneurship, apprenticeships, externships, internships, faculty or K-12 teacher development, and mentoring may be considered to promote or support STEM engagement and interest. Stakeholders may include, but are not limited to, community-based groups or organizations, nonprofit or philanthropic organizations, state and local education agencies (K-12), businesses, libraries, museums, educational institutions, and other agencies.

Complementary to the Primary Functions

In addition to the above four functions, a management plan, an evaluation plan, and a sustainability plan would be required to demonstrate adequate capacity to carry out the goals and functions of ACSER.

Management Plan: This section presents a proposed plan for implementing ACSER over a five-year period, including clear articulation of the organizational and management structure and lines of communication, delineation of roles and responsibilities, and a statement on how staff, advisors, and partners will work collaboratively to carry out the functions of ACSER.
- Evaluation Plan: This section details a proposed plan to evaluate, assess, and monitor ACSER progress, outcomes, and impacts.
- Sustainability Plan: This section describes a proposed plan to sustain ACSER beyond the life of the cooperative agreement.

Additional information on these three proposed plans is provided in the Proposal Preparation Section below.

Site Resources

This solicitation calls for proposals to manage the education, research, and outreach aspects of ACSER.

Resources available on site for education, research, and outreach efforts include:

- The Ángel Ramos Foundation Science & Visitor Center, which includes
    - Visitor's Center (with Visitor Center shop)
    - Exhibition Space
    - Auditorium
- Learning Center (separate building with classroom space for approx. 30)
- Office Space
- Laboratory Space
- Cafeteria
- Dormitories

A third-party contractor would be responsible for maintenance of the site resources listed above, in addition to grounds maintenance. The cafeteria and dormitories may be operated on a cost-recovery basis by the awardee or contractor. In support of tourism and informal outreach, the Visitor's Center, with or without associated Visitor Center shop, would be operated by the awardee of this solicitation (or subawardee; see section V.B: Budgetary Information below for information on potential Program income from the Visitor Center shop). For additional information regarding the Arecibo Observatory site and facilities and third-party site maintenance responsibilities, please visit the solicitation website.

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[3] See reports issued by the Institute of Museum and Library Services (2008), Reach Advisors (2015), IMPACTS Research (2017), and Wilkening Consulting (2018), and IMPACTS Research (2020).

III. AWARD INFORMATION

Anticipated Type of Award: Cooperative Agreement

Estimated Number of Awards: 1 Cooperative agreement for a 5 year period.

Anticipated Funding Amount: $5,000,000

Estimated budget is subject to the availability of funds.

V. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the NSF Proposal & Award Policies & Procedures Guide (PAPPG), Chapter I.E. Unaffiliated individuals are not eligible to submit proposals in response to this solicitation.

    Required:

    For a single institution proposal (with or without subawards), the submitting institution must be a Hispanic Serving Institution (HSI), two- and four-year Institutions of Higher Education that satisfies the definition of an HSI as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a).

    For collaborative proposals submitted by multiple organizations (see PAPPG, II.D.3.b), the lead institution or at least one non-lead institution (i.e., collaborative institution) on the proposal must be an HSI, two- and four-year Institutions of Higher Education that satisfies the definition of an HSI as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a).

    All proposal submissions must include a HSI Designation Letter(s) provided by the Department of Education for the HSI institution(s) involved.

    Submissions are strongly encouraged but not required from the following:

- **Established Program to Stimulate Competitive Research Jurisdictions (EPSCoR)**: EPSCoR jurisdictions; Proposals that include EPSCoR jurisdictions are strongly encouraged to explicitly state the value of including the EPSCoR jurisdiction(s) in the proposed work, including but not limited to, a brief statement on how the proposal aligns with at least one EPSCoR program goal. For more information on EPSCoR goals and its jurisdictions, please see https://beta.nsf.gov/funding/initiatives/epscor/state-websites.
- **Non-profit Organizations**: Independent museums and science centers, observatories, research labs, community-based organizations, professional societies and similar organizations in the U.S., especially in Puerto Rico, associated with educational or research activities.
- **Other Institutions of Higher Education (IHEs)**: Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the United States, acting on behalf of their faculty members.

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:

There are no restrictions or limits.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

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

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

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via Research.gov. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

The following instructions supplement guidelines in the NSF *PAPPG* and NSF *Grants.gov Application Guide*:

1. Proposal Title

The title of the proposed project must begin with: **"ACSER:"**

2. Cover Sheet

Prospective PIs should complete this sheet with the requested information. Please make sure to check the human subjects' box since the proposal will involve human subjects. To avoid delays in processing an award recommendation, it is strongly recommended that PIs begin the process of obtaining appropriate Institutional Review Board (IRB) approvals or exemptions as needed for projects involving human subjects. No awards will be made without such approvals or exemptions.

3. Project Description

The Project Description is limited to a maximum of 15 pages and must comply with all formatting requirements denoted in the most current (PAPPG II.C.2.d). Please note that, per guidance in the PAPPG, the Project Description must contain a separate section labeled "Broader Impacts." Proposers can decide where to include this section within the Project Description.

In addition to the requirements outlined in the NSF PAPPG, proposals should address the sections below, including the four functions defined in the project description. The proposal should include the section headings listed below:

a. Overview and Rationale

This section presents a vision for the new Arecibo Center for STEM Education and Research that aligns with the goals and functions of the proposed ACSER as delineated in the solicitation. It provides a brief overview of the proposed work within the context of intellectual merit and broader impacts. A rationale for the participating institutions and partnering organizations and how they are suited for the work proposed should also be provided.

b. Education, Research, and Outreach Plan

This section describes a framework to achieve the goals of the proposed ACSER through a comprehensive education, research, and outreach plan. Each of the four ACSER functions delineated in the solicitation must be explicitly addressed in this section of the proposal. Exemplars of programs and activities should be provided for various populations (e.g., K-12, undergraduates, STEM researchers and professionals) across STEM disciplines in education, research, and outreach. Relevant culturally responsive literature and models used to inform the proposed approaches should be cited and expected outcomes explicitly stated. Proposals should include plans to develop and maintain an ACSER website and social media presence.

c. Management Plan

This section of the proposal should describe a plan for implementing ACSER over a five-year period. It should present a clear description of the management and organizational structure to be employed. A clear delineation of the proposed roles and responsibilities of team members, along with their time and effort committed to ACSER is needed. Proposals should also identify and address effective communications and decision-making processes necessary to carry out the work. A brief description of how coordination with partners, advisory groups, and other key stakeholders would be managed should be provided. The project team should reflect the expertise and diversity needed to successfully develop, implement, manage, and achieve the stated goals and functions of ACSER. An advisory group(s) or consultants who could provide guidance on various aspects of the work, such as, fundamental scientific and education research program, public engagement in STEM, public-private partnerships and collaborations, and evaluation is highly recommended to leverage additional expertise. The team is also encouraged to consider a plan to encourage local docents and community members in the work and management of ACSER. This section should include a project timeline with key milestones.

d. Evaluation Plan

This section should incorporate mechanisms to evaluate, assess, and monitor the progress, outcomes, and impacts of the proposed Center. The description should include metrics and milestones that would be used to assess the project's progress. The evaluation plan should be based on S.M.A.R.T (Specific, Measurable, Attainable, Realistic, and Time-bound) goals. Evaluation plans should include formative and summative evaluative activities and be appropriate for the scope and include a logic model or other model that connects the project goals to the specific activities, outputs, and outcomes. Center evaluations should provide clear benchmarks and indicators of progress that would inform reviewers of the proposers' understanding of essential factors for judging accountability.

An external evaluator should be identified to lead the formative and summative evaluations. The individual or organization should be named in the Project Description section of the proposal. Proposals should: (1) describe the expertise of the evaluator(s); (2) explain how that expertise relates to the goals and objectives of the proposal; and (3) specify how the PI would report and use results of the project's external review process. The bio-sketch(es) of the external evaluator or team should be uploaded as a supplementary document. Evaluators are expected to adhere to the American Evaluation Association's Guiding Principles for Evaluators (http://www.eval.org/p/cm/ld/fid=51), and project evaluations are expected to be consistent with standards established by the Joint Committee on Standards for Educational Evaluation (http://www.jcsee.org/program-evaluation-standards-statements.

e. Sustainability Plan

Sustainability activities are expected. Sustainability refers to plans for how ACSER would be sustained beyond the life of the award. The plan should include an assessment of the impact that the activities of ACSER would have on the community it would serve and define the long-term vision for ACSER. In developing sustainability plans, the proposal may include short and long-term goals of the impact of ACSER activities; identify strategies that strengthen long-lasting collaborations and partnerships; and describe the highest priority areas of sustainability (i.e., staff succession, community outreach and stakeholder engagement; funding; etc.). The plan should provide details of how ACSER would continue to be supported and sustained after the award has ended.

4. Budget and Budget Justification

a. Evaluation Costs

Funds to support an evaluator independent of the project must be included in the budget. The requested funds must match the scope of the proposed work and evaluative activities.

b. Reverse Site Visits

All proposals should budget for the PI team and evaluator to participate in three reverse site visits held virtually or at NSF. For purposes of the budget, costs associated with in-person attendance should be included in the budget and budget justification.

c. Principal Investigator Meetings

All proposals should budget for at least two PI team members to attend a PI meeting hosted by the NSF Advancing Informal STEM Learning Program (AISL) and the Improving Undergraduate STEM Education: Hispanic-Serving Institutions (HSI) Program.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Program Income:

The **optional** operations of the Visitor Center shop may generate Program income. In accordance with Code of Federal Regulations 2CFR200.307 (Program income), Non-Federal entities are encouraged to earn income to defray program costs where appropriate. For this award, program income may be added to the award. The program income must be used for the purposes and under the conditions of the award.

C. Due Dates

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

    February 28, 2023

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

1. To what extent are the research, educational, outreach, and knowledge transfer activities leveraging existing efforts while also proposing new, innovative approaches to engage a broad range of individuals and communities in STEM and how do they contribute to the unifying goals and functions of the Center?
2. How well does the proposal demonstrate deep understanding of, knowledge of, and experience with broadening participation as well as the ability to reach out to and connect with various constituents in Puerto Rico and groups underrepresented in STEM?
3. To what extent does the proposed Center management have the vision, experience, and capacity to manage a complex and innovative enterprise that integrates research, education, outreach, and knowledge transfer?
4. To what extent is the evaluation plan reasonable and appropriate, providing clear benchmarks and indicators of progress with well-defined S.M.A.R.T. goals?
5. To what extent is the sustainability plan positioned to facilitate long-term engagement with partnering organizations and key stakeholders, and ensure sustainability of the proposed ACSER beyond the life of the award?

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Panel Review and/or Reverse Site Review.

Proposals submitted in response to this solicitation will participate in two levels of review: (a) panel review and (b) pre-award reverse site visit. The initial panel review will follow the standard merit review process with an external panel review and or ad hoc review. After the panel review, a maximum of three proposals/PI teams will be selected to participate in the pre-award reverse site visit. The pre-award reverse site visit will be an internal virtual activity for PI teams to provide clarifications, additional details, and address questions on their proposals posed by the proposal review panel and NSF Staff.

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.

Special Award Conditions:

The Cooperative Agreement would include an extensive section of Special Conditions relating to the period of performance, detailed work description, awardee responsibilities, NSF responsibilities, joint NSF awardee responsibilities, funding and funding schedule, reporting and evaluation requirements, key personnel, and other conditions. Within the first 90 days of any award made in response to this solicitation, the lead institution should submit to NSF a coordination and communications plan to facilitate interactions with the proposed third-part site maintenance contractor.

Specific terms and conditions would be included in the cooperative agreement for awardees who opt to assume operations of the Visitor Center and Shop, which may generate program income. In accordance with Code of Federal Regulations 2CFR200.307 (Program income), Non-Federal entities would be encouraged to earn income to defray program costs where appropriate. If an award is made, the program income may be added to the award and used for the purposes and under the conditions of the award.

If awarded, NSF would provide general oversight and monitoring of the cooperative agreement to ensure effective performance and administration, as well as to facilitate any coordination necessary to further the goals of ACSER and Arecibo Observatory site preservation.

Awardees would be required to include appropriate acknowledgment of NSF support in any publication (including World Wide Web pages) of any material based on or developed under the project, in the following terms: "This material is based upon work supported by the National Science Foundation under Grant No. (Awardee enters NSF grant number.)"

Awardees would also be required to orally acknowledge NSF support using the language specified above during all news media interviews, including popular media such as radio, television, and news magazines.

Any cooperative agreement awarded in response to this solicitation would contain the following term and condition:

Ensuring Adequate COVID-19 Safety Protocols

a. This clause implements Section 3(b) of Executive Order 14042, Ensuring Adequate COVID Safety Protocols for Federal Contractors, dated September9, 2021 (published in the Federal Register on September 14, 2021, 86 FR 50985). Note that the Department of Labor has included "cooperative agreements" within the definition of "contract-like instrument" in its rule referenced at Section 2(e) of this Executive Order, which provides:

For purposes of this order, the term "contract or contract-like instrument" shall have the meaning set forth in the Department of Labor's proposed rule, "Increasing the Minimum Wage for Federal Contractors, " 86 Fed. Reg. 38816, 38887 (July 22, 2021). If the Department of Labor issues a final rule relating to that proposed rule, that term shall have the meaning set forth in that final rule.

b. The awardee must comply with all guidance, including guidance conveyed through Frequently Asked Questions, as amended during the performance of this award, for awardee workplace locations published by the Safer Federal Workforce Task Force (Task Force Guidance) at https://www.saferfederalworkforce.gov/contractors/

c. Subawards. The awardee must include the substance of this clause, including this paragraph (c), in subawards at any tier that exceed the simplified acquisition threshold, as defined in Federal Acquisition Regulation 2.101 on the date of subaward, and are for services, including construction, performed in whole or in part within the United States or its outlying areas. That threshold is presently $250,000.

d. Definition. As used in this clause, United States or its outlying areas means:

1. The fifty States;
2. The District of Columbia;
3. The commonwealths of Puerto Rico and the Northern Mariana Islands;
4. The territories of American Samoa, Guam, and the United States Virgin Islands; and
5. The minor outlying islands of Baker Island, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Islands, Navassa Island, Palmyra Atoll, and Wake Atoll.

The Foundation will take no action to enforce this article, where the place of performance identified in the award is in a U.S. state or outlying area subject to a court order prohibiting the application of requirements pursuant to the Executive Order (hereinafter, "Excluded State or Outlying Area". A current list of such Excluded States and Outlying Areas is maintained at https://www.saferfederalworkforce.gov/contractors/.

C. Reporting Requirements

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

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

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

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

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Sonja Montas-Hunter, telephone: (703) 292-7404, email: acser@nsf.gov
- Monya A. Ruffin-Nash, telephone: (703) 292-4635, email: acser@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.

Related Program: NSF 17-538, Management and Operations of the Arecibo Observatory

ABOUT THE NATIONAL SCIENCE FOUNDATION

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

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

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

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

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

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

> The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.
>
> To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at https://www.nsf.gov.
>
> - **Location:**   2415 Eisenhower Avenue, Alexandria, VA 22314
>
> - **For General Information**   (703) 292-5111
>   (NSF Information Center)**:**
>
> - **TDD (for the hearing-impaired):**   (703) 292-5090
>
> - **To Order Publications or Forms:**
>
>   Send an e-mail to: nsfpubs@nsf.gov

or telephone:	(703) 292-8134
● **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
National Science Foundation
Alexandria, VA 22314

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National Science Foundation, 2415 Eisenhower Avenue, Alexandria, Virginia 22314, USA
Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (703) 292-5090 or (800) 281-8749

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