

# Oportunidades de Fondos Externos

Vicepresidencia de Recursos Externos  
ACADEMIC YEAR 2022 - 23 / VOLUME XI



Universidad de Puerto Rico

LA MEJOR EDUCACIÓN A TU ALCANCE

APRIL 12, 2023

UPR external funding success is of utmost importance to strengthen the connection between its investigators/faculty and funding entities who have the potential to sponsor their research and academic endeavors. This publication has been developed in order to summarize funding opportunities and promote the participation of faculty and collaborative research groups in their intent to apply for external funds. Such efforts are aligned with the UPR Strategic Plan 2017-2022: A New Era of Innovation and Transformation for Student Success; Certification 50 (2016-2017) of the Governing Board, December 19, 2016. Strategic Area: Research and Creative Work. Goal 2: Increase Applications for and awards of external funds for research and creative work.

## SELECTED FUNDING OPPORTUNITIES

This is a selection of identified funding opportunities for the period ending 04/12/2023 and is in no way all-inclusive of funding opportunities available. Further information has been shared with External Resource Coordinators and Research Coordinators at each UPR campus by e-mail.

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## 1. Minority Science and Engineering Improvement Program (MSEIP), Dept. of Education

**Application Deadline: May 30, 2023**

**Anticipated Funding Amount: \$250,000–\$300,000 for up to 36 months**

The MSEIP is designed to effect long-range improvement in science and engineering education at predominantly minority institutions and to increase the participation of underrepresented ethnic minorities, particularly minority women, into scientific and technological careers, consistent with nondiscrimination requirements contained in Federal civil rights laws.

This notice contains two competitive preference priorities:

- **Competitive Preference Priority 1:** Increasing Postsecondary Education Access, Affordability, Completion, and Post-Enrollment Success (Up to 9 points). Projects that are designed to increase postsecondary access, affordability, completion, and success for underserved students by addressing one or more of the following priority areas:
  - (a) Supporting the development and implementation of high-quality and accessible learning opportunities, including learning opportunities that are accelerated or hybrid online, credit-bearing, work-based, and flexible for working students. (Up to 3 points)
  - (b) Supporting the development and implementation of evidence-based strategies to promote students' development of knowledge and skills necessary for success in the workforce and civic life. (Up to 3 points)
  - (c) Providing secondary school students with access to career exploration and advising opportunities to help students make informed decisions about their postsecondary enrollment decisions and to place them on a career path. (Up to 3 points).
- **Competitive Preference Priority 2:** New Potential Grantees (3 points). Under this priority, we award an additional three points to applicants that have not received MSEIP funding within seven years before the deadline date for submission of applications under this program competition.

There are four types of MSEIP grants:

- **Institutional Project:** grants that support the implementation of a comprehensive science improvement plan, which may include any combination of activities for improving the preparation of minority students, particularly minority women, for careers in science.
- **Special Project:** There are two types of special project grants.
  - First, there are special project grants for which only minority institutions are eligible. These special project grants support activities that (1) improve quality training in science and engineering at minority institutions; or (2) enhance the minority institutions' general scientific research capabilities.
  - There also are special project grants for which all applicants are eligible. These special project grants support activities that (1) provide a needed service to a group of eligible minority institutions; or (2) provide in-service training for project directors, scientists, and engineers from eligible minority institutions.
- **Cooperative Project:** grants to assist groups of nonprofit accredited colleges and universities to work together to conduct a science improvement project.

**Pre-Application Webinar information:** The Department will hold a pre-application meeting via webinar for prospective applicants. Detailed information regarding this webinar will be provided on the MSEIP website at <http://www2.ed.gov/programs/idadesmsi/index.html> .

**Link to Additional Information:** <https://www.govinfo.gov/content/pkg/FR-2023-03-30/pdf/2023-06581.pdf>

## 2. Biophotonics, NSF

**Application Deadlines: Proposal Accepted Anytime**

**Award Amounts: budgets are not limited but need to reflect the actual needs of the proposed project**

The Biophotonics program is part of the Engineering Biology and Health cluster, which also includes: 1) the Biosensing program; 2) the Cellular and Biochemical Engineering program; 3) the Disability and Rehabilitation Engineering

program; and 4) the Engineering of Biomedical Systems program.

The goal of the Biophotonics program is to explore the research frontiers in photonics principles, engineering and technology that are relevant for critical problems in fields of medicine, biology and biotechnology. Fundamental engineering research and innovation in photonics is required to lay the foundations for new technologies beyond those that are mature and ready for application in medical diagnostics and therapies. Advances are needed in nanophotonics, optogenetics, contrast and targeting agents, ultra-thin probes, wide field imaging, and rapid biomarker screening. Low cost and minimally invasive medical diagnostics and therapies are key motivating application goals.

Research topics in this program include:

- **Imaging in the second near infrared window:** Research that advances medical applications of biophotonics in the second near-infrared window (NIR-II: 1,000-1,700 nm) in which biological tissues are transparent up to several centimeters in depth, making this spectral window ideal for deep tissue imaging.
- **Macromolecule markers:** Innovative methods for labeling of macromolecules. Novel compositions of matter. Methods of fabrication of multicolor probes that could be used for marking and detection of specific pathological cells. Pushing the envelope of optical sensing to the limits of detection, resolution, and identification.
- **Low coherence sensing at the nanoscale:** Low coherence enhanced backscattering (LEBS). N-dimensional elastic light scattering. Angle-resolved low coherence interferometry for early cancer detection (dysplasia).
- **Neurophotonics:** Studies of photon activation of neurons at the interface of nanomaterials attached to cells. Development and application of biocompatible photonic tools such as parallel interfaces and interconnects for communicating and control of neural networks.
- **Microphotonics and nanophotonics:** Development and application of novel nanoparticle fluorescent quantum-dots. Sensitive, multiplexed, high-throughput characterization of macromolecular properties of cells. Nanomaterials and nanodevices for biomedicine.
- **Optogenetics:** Novel research in employing light-activated channels and enzymes for manipulation of neural activity with temporal precision. Utilizing nanophotonics, nanofibers, and genetic techniques for mapping and studying in real-time physiological processes in organs such as the brain and heart.

Innovative proposals outside of these specific interest areas may be considered. However, prior to submission, it is recommended that the Principal Investigator contact the program director to avoid the possibility of the proposal being returned without review.

**Link to Additional Information:** <https://beta.nsf.gov/funding/opportunities/biophotonics-2>

### 3. Young Investigator Program (YIP), Office of Naval Research

#### Application Deadlines:

- **Inquiries and Questions: June 23, 2023**
- **Full Proposal: July 7, 2023**

**Award Amounts: \$750 K for a period of performance of three years**

ONR's Young Investigator Program seeks to identify and support academic scientists and engineers who are in their first or second full-time tenure-track or tenure-track-equivalent academic appointment, who have received their PhD or equivalent degree on or after 01 January 2016, and who show exceptional promise for doing creative research. The objectives of this program are to attract outstanding faculty members of U.S. Institutions of Higher Education (hereafter also called "universities") to the Department of the Navy's Science and Technology (S&T) research program, to support their research, and to encourage their teaching and research careers.

Proposals addressing research areas (as described in the ONR Science and Technology Department section of ONR's website at <https://www.nre.navy.mil/>) which are of interest to ONR Program Officers will be considered. Contact information for each division (a subgroup of an S&T Department) is also listed within the S&T section of the website.

Applicants are STRONGLY ENCOURAGED to contact the appropriate Program Officer who is the point of contact for a specific technical area to discuss their research ideas before submitting a proposal. A list of most Program Officers and their contact information can be found at:

- a. <https://www.nre.navy.mil/our-research/onr-technology-and-research>
- b. <https://www.nre.navy.mil/our-research/our-program-officers>

Brief informal white papers may be submitted to facilitate these discussions but are not required. Such discussions can clarify the content and breadth of the priority research areas and enhance the match between a subsequent proposal and Department of the Navy research needs. Please allow adequate time for such discussions with the ONR Program Officer. The brief informal pre-proposal should be emailed to the ONR Program Officer with [ONRYIP@navy.mil](mailto:ONRYIP@navy.mil) on the cc: line. The [ONRYIP@navy.mil](mailto:ONRYIP@navy.mil) need only be cc'd on the first email correspondence.

An individual wishing to apply for the Young Investigator Program MUST submit a research proposal and at least one Letter of Support through the appropriate university officials.

The ONR YIP is a single principal investigator (PI) award. Co-principal investigators (Co-PIs) are not allowed.

**Link to Additional Information:** <https://www.nre.navy.mil/work-with-us/funding-opportunities/fy-2024-young-investigator-program-yip>

#### **4. Centers for Research and Innovation in Science, the Environment and Society (CRISES), NSF**

**Application Deadlines: June 26, 2023**

**Award Amounts: budgets are not limited but need to reflect the actual needs of the proposed project**

The U.S. National Science Foundation seeks to build research capacity and infrastructure to address complex and compounding national and global crises whose solutions require a human-centered approach. To help generate effective and long-lasting solutions that benefit the entire U.S. public, NSF is providing this funding opportunity to inform possible future Centers for Research and Innovation in Science, the Environment and Society (CRISES).

The envisioned centers will catalyze new research and research-based innovations to address seemingly intractable problems that confront our society. They will develop evidence-based solutions that address fundamental quality-of-life issues, such as those involving the environment, extreme weather and sustainability; workforce and the economy; equity and access to opportunities; and well-being.

CRISES supports planning, conference and EAGER proposals to catalyze ideas that will potentially inform or serve as the basis for a larger, center-scale program.

This opportunity supports researchers in the social, behavioral and economic sciences who use empirical methods to grapple with crises that impact individuals, families, organizations, regions, nations or our entire planet. The Centers for Research in Science, the Environment and Society initiative invites proposals to take the first steps toward developing large-scale interdisciplinary research activities that will address today's crises and ultimately enhance people's quality of life.

NSF's Social, Behavioral and Economic Sciences Directorate supports research to understand the social and behavioral aspects of our rapidly changing world and how these issues are affected by our social, economic and natural environments. Fundamental and use-inspired research supported by the directorate advances our understanding of people, organizations and society, while revealing emerging opportunities to address challenges affecting our ability to live healthy and productive lives.

**Link to Additional Information:** <https://beta.nsf.gov/funding/opportunities/centers-research-innovation-science-environment>

## 5. Impacts of climate change across the cancer control continuum (R01 Clinical Trial Optional), NIH

### Application Due Date:

- Letter of Intent: 30 days prior to application due date
- Full Proposal: June 5, 2023; October 5, 2023

**Award Budget:** budgets are not limited but need to reflect the actual needs of the proposed project

### Purpose

This Notice of Funding Opportunity (NOFO) aims to support innovative research relevant to advancing the understanding of the effects of climate change on cancer risks, control, and survivorship, and ways to prevent or mitigate negative health effects. This includes, but is not limited to (i) understanding the impact of climate-related environmental changes on cancer risks, control, and health behaviors; (ii) mitigating the impacts of climate-related cancer care delivery disruptions; (iii) developing and testing behavioral interventions that reduce cancer risks and improve environmental health; and (iv) investigating and reducing health inequities resulting from direct and/or indirect effects of climate change across the cancer control continuum.

### Research Objectives and Scope

This NOFO calls for multidisciplinary observational, intervention, and/or implementation research to understand and address impacts of climate change across the cancer control continuum. Research with consideration for populations that experience cancer health disparities and who are likely to experience a disproportionate burden of effects from a changing climate, is encouraged. Applicants should address how climate change is affecting (a) cancer risks and carcinogenic exposures; (b) cancer prevention behaviors such as dietary intake, physical activity, and ultraviolet radiation exposure; or (c) disruptions to healthcare systems and cancer care management. Research applications must include collaboration with a researcher with climate change expertise and are encouraged to integrate multiple disciplines because the direct and indirect impacts of climate change on cancer-related outcomes are complex, synergistic, and multilevel.

Research topics of specific interest include, but are not limited to the following:

- Assess the impact of climate change-related environmental changes on cancer risk and cancer outcomes, including carcinogenic exposures and vector-borne diseases.
- Understand and address the susceptibility of cancer survivors to direct and/or indirect climate change effects, such as the spread of vector-borne disease, disruptions in care, and factors that can impact cancer recurrence and/or potential latent effects among childhood cancer survivors.
- Model the magnitude of the impacts of climate change on cancer-related risk factors and health behaviors (e.g. geospatial data linkages).
- Identify and/or characterize communities particularly vulnerable to increased environmental exposures and cancer risk due to climate change-related events and develop interventions to mitigate the impact of social determinants related to climate change and cancer risk.
- Develop and test strategies to enhance the equitable adoption, implementation, and sustainability of evidence-based mitigation or adaptation efforts that reduce the burden of climate change on cancer outcomes.
- Improve understanding of the behavioral, social, and psychological factors that underlie cancer preventive health behaviors implicated in climate change in order to develop approaches to target health behaviors related to both cancer and climate change (e.g., promoting plant-based diets, active transportation).
- Identify, develop, and test behavioral interventions at multiple levels (from the individual to systems-level) to facilitate behavioral strategies and policies that reduce climate change and promote climate-resilient and adaptive health behaviors.
- Determine factors (e.g., staffing, infrastructure, technology, supply chains, processes of care) that influence the resiliency of healthcare organizations and their ability to prepare and respond to climate-related events to prevent disruption of cancer care across the cancer control continuum.
- Identify, develop, and test strategies to enhance health care system climate-resilience and capacity to deliver high-quality, equitable cancer care, particularly in the face of multiple or compounding climate-related events.

**Link to Additional Information:** <https://grants.nih.gov/grants/guide/pa-files/PAR-23-153.html>

## **6. Developing Measures to Advance Access and Quality in Global Mental Health Services (R34 Clinical Trial Not Allowed), NIH**

### **Application Due Dates:**

- **Letter of Intent: September 18, 2023**
- **Full Proposal: October 18, 2023**

**Award Amount: direct costs are limited to \$225,000 per year and \$450,000 over the 3-year project period**

This Notice of Funding Opportunity (NOFO) aims to support the development and pilot testing of outcomes-focused access and quality measures that have the potential to be reviewed, approved and implemented by the relevant regulatory or governing bodies in low- and middle-income countries (LMICs) such as Ministries of Health or government-sponsored health insurance schemes. This program announcement uses the R34 mechanism and intends to foster pilot mental health services research in measure development and testing with the potential for high public health impact. NIMH seeks to advance the development of novel and innovative measures to assess changes in access to mental health care, the effectiveness of evidence-based care, and the quality of care across programs or clinical settings, utilizing real-world data.

All applications are expected to generate implementable measures with existing data or feasible modeling exercises. These applications should provide innovative approaches to sustain the data flow necessary to scale up the use of this measure in different mental health care settings.

NIMH encourages investigators to develop and leverage solid research-practice partnerships with public and private stakeholders, so the research follows a deployment-focused model of services design and testing. Deployment-focused studies consider the perspective of relevant stakeholders and key characteristics of settings intended to implement optimized mental health interventions. This attention to end-user views and characteristics of intended policy, management, clinical and/or community practice settings intends to ensure that resultant interventions and service delivery strategies are feasible and scalable and that the research results will have utility for end users. Such communication and collaboration will ensure findings are relevant and practical, create opportunities for research that is not otherwise feasible, and enable stakeholders to anticipate relevant research initiatives in their planning and activities.

Applications are expected to demonstrate a substantial likelihood of improving the substandard data measures used to monitor access and quality at the service delivery level and progress with the objectives defined in the respective national mental health plan or laws and the international mental health goals.

Applications that propose secondary data analyses must demonstrate the sufficiency of existing data sets in quantity and quality to test hypothesized mediational pathways or generate new hypotheses using computational and/or data science analytic approaches.

It will be essential for the applicants to describe how the proposed research is relevant to the local context and aligns with NIMH's scientific priorities of transforming the prevention and treatment of mental illnesses and translating evidence into practice and policy.

This NOFO aims to support research that contributes to the long-term goals of strengthening the sustainable research capacity in LMICs. All projects must describe the extent of researchers' involvement in LMICs and propose a research capacity-building component.

Applications are expected to describe a plan and activities that may include but are not limited to:

- Engaging students and early investigators from the partner country institutions in bilateral training and exchanging knowledge on topics relevant to the research project.
- Providing opportunities for obtaining relevant qualifications and expertise in research (e.g., Master's and Ph.D. degrees).
- Developing and disseminating implementation science programs to support the development of future studies.

- Training in writing and submitting grants to NIH, written and publishing manuscripts.
- Professional development in grants administration to foster proficiency in the management of scientific and administrative aspects of the grant.
- Contributing to informing and disseminating common measures/data elements, evidence-based treatment, prevention, and health system policies where the study is taking place.
- Making efficient use of local/regional oversight bodies such as International Review Boards (IRB) and Data and Safety Monitoring Boards (DSMBs)

Specific Areas of Interest - Examples of responsive research include but are not limited to studies that develop and pilot test outcome-focused access or quality measures:

- For evidence-based services available to specific populations such as migrants, refugees, and individual at high-risk of suicide
- For evidence-based interventions or services available to address specific mental illnesses, such as autism-spectrum disorder, psychosis, depression, or dementia among others
- For specific settings of care such as emergency care, hospital-based care, community-based care, outpatient mental health, and integrated mental health care into physical care
- For specific processes like deinstitutionalization of individuals with serious mental illnesses, deprescribing of psychotropic medicines, and psychosocial interventions, among others
- For digital or artificial intelligence technologies

**Link to Additional Information:** <https://grants.nih.gov/grants/guide/rfa-files/RFA-MH-23-300.html>

## 7. Electrochemical Systems, NSF

**Application Deadlines: Proposal Accepted Anytime**

**Award Amounts: budgets are not limited but need to reflect the actual needs of the proposed project**

The Electrochemical Systems program is part of the Chemical Process Systems cluster, which also includes:

- 1) Catalysis program
- 2) Interfacial Engineering program
- 3) Process Systems, Reaction Engineering, and Molecular Thermodynamics program

The goal of the Electrochemical Systems program is to support fundamental engineering science research that will enable innovative processes involving electrochemistry or photochemistry for the sustainable production of electricity, fuels, chemicals, and other specialty and commodity products. Processes utilizing electrochemistry or photochemistry for sustainable energy and chemical production must be scalable, environmentally benign, reduce greenhouse gas production, and utilize renewable resources. Research projects that stress fundamental understanding of phenomena that directly impact key barriers to improved system or component-level performance (for example, energy efficiency, product yield, process intensification) are encouraged. Processes for energy storage should address fundamental research barriers for renewable electricity storage applications, for transport propulsion, or for other applications that could have impact towards climate change mitigation. For projects concerning energy storage materials, proposals should involve testable hypotheses that involve device or component performance characteristics that are tied to fundamental understanding of transport, kinetics, or thermodynamics. Advanced chemistries beyond lithium-ion are encouraged. Proposed research on processes utilizing electrochemistry or photochemistry should be inspired by the need for economic and impactful conversion processes.

All proposal project descriptions should address how the proposed work, if successful, will improve process realization and economic feasibility and compare the proposed work against current state of the art. Highly integrated multidisciplinary projects are encouraged. When appropriate, collaborations with industrial technologists are encouraged through GOALI proposals. Collaborative projects with an integrated experimental and theoretical approach are also encouraged.

Topics of interest include electrochemical energy storage and electrochemical production/conversion systems. Radically new battery systems can move the U.S. more rapidly toward a more sustainable transportation future and to greater renewable electricity production penetration. High-energy density and high-power density batteries suitable for transportation and renewable energy storage applications are of primary interest. Advanced systems involving metal anodes, solid-state electrolytes, nonaqueous systems beyond lithium, aqueous systems beyond lithium, and multivalent chemistries are encouraged. Research activities focused on commercially available systems such as lead-acid and nickel-metal hydride batteries or lithium-ion batteries for medical or consumer electronics applications will not be considered by this program. Novel electrochemical and photochemical systems and processes for the production of chemicals and high-value products are encouraged. Emphasis is placed on those systems that improve process intensification and process modularization with accompanying benefits in energy efficiency and environmental footprint.

Additional fundamental science topics of interest to this program include the study of:

- advanced fuel cell systems or fuel cell components for transportation propulsion or grid energy storage applications
- flow batteries for stationary energy storage applications including alternative redox chemistries (e.g., organic, inorganic, organometallic, macromolecular) and operating strategies (e.g., redox-mediation, suspensions)
- photocatalytic or photoelectrochemical processes and devices for the splitting of water into hydrogen gas or for the reduction of carbon dioxide to liquid or gaseous fuels. Projects that largely focus on developing fundamental understanding of the catalytic reaction mechanisms and structure-function relationships may be more appropriate as submissions to the CBET Catalysis program (CBET 1401)

Projects submitted to the Electrochemical Systems program are expected to develop fundamental, molecular-level understanding of the key chemical reaction and transport phenomena barriers to improved system-level performance. Innovative proposals outside of these specific interest areas may be considered.

**Important:** it is recommended that the Principal Investigator contact the program director to avoid the possibility of the proposal being returned without review.

**Link to Additional Information:** <https://beta.nsf.gov/funding/opportunities/electrochemical-systems-1>

## 8. STEM Program, Office of Naval Research

**Application Deadline: April 2, 2024**

**Award Budget: amount and period of performance of each proposal selected for award may vary depending on the technology area and the technical approach to be pursued by the offeror selected**

The goal of proposed efforts must provide solutions that establish, build, and/or maintain STEM educational pathways and workforce opportunities for diverse U.S. citizens directly relevant to ONR science and technology areas.

As the capacity of the Department of the Navy (DON) Science and Technology (S&T) workforce is interconnected with STEM education and outreach, ONR recognizes the need to support efforts that can jointly improve STEM student outcomes and align education and outreach efforts with Naval S&T current and future workforce needs. This announcement explicitly encourages projects that improve the capacity of education systems and communities to create impactful STEM educational experiences for students of all ages and the naval-related workforce. Projects must aim to increase engagement in STEM, from students to the current workforce, and enhance people with needed Naval STEM skills, knowledge and abilities. ONR encourages applications to utilize current STEM educational research for informing project design and advancing STEM careers and opportunities of naval relevance.

This FOA is specifically seeking STEM education and outreach projects that address scientific and technical areas identified in the following thrust areas. Project scope may range in size and complexity. While not a formal requirement or program focus of this FOA, applicants are strongly encouraged to consider under-represented and under-served



populations including women and minorities in project plans. Special audience priority areas may include, but not be limited to, military connected students, veteran initiatives, and education systems integral to naval science and technology.

Specific items to be addressed are:

- Cyber Protection – Defense in Depth
  - Background: Cybersecurity can be deployed at multiple levels often termed “defense in depth”. Levels can be categorized into:
    - Application and data security
    - Host or device security
    - Network security
  - Opportunities exist to improve security at any or all of those levels.
  - **Goal:** The Principal Investigator will present an approach to educate high school students on the opportunities for understanding, deploying and configuring various levels of security. The goal is to enhance students’ awareness of the impacts and tradeoffs for various layered security defense implementations. The instruction should not just be tutorials but interactive so that the students learn the types of tools/features and how to properly use them based on circumstances.
  - **Procedure:** An email to the ONR Program Officer is encouraged prior to submission of either a white paper or full proposal. Upon the results of such, the proposer will submit a white paper to the Program Officer and await further guidance as to submit a full proposal. Proposals of varying duration and pricing will be considered.
  - **Point of Contact:** Dr. Daniel P. Koller, Code 31, [daniel.p.koller.civ@us.navy.mil](mailto:daniel.p.koller.civ@us.navy.mil)
- STEM interests supporting warfighter performance include:
  - Human Physiology and Performance
  - Medical and Biology
  - Bio-centric Technologies
  - Artificial Intelligence and Autonomy
  - Training and Education
  - Social and Cultural
  - Command and Control
  - **Point of Contact:** Ms. Natalie Steinhauser, Code 34, [natalie.b.steinhauser.civ@us.navy.mil](mailto:natalie.b.steinhauser.civ@us.navy.mil)
- ONR Global STEM interests include:
  - Advanced sustainment technologies
  - Digital transformation (digital modeling, analysis, engineering, manufacturing, etc.)
  - Advanced manufacturing and materials
  - Alternate Navigation at High Latitude
  - Expeditionary power
  - Underwater High Bandwidth Communications
  - Undersea Vehicle Technology
- ONR Global Points of Contact, Code 600:
  - Undersea Vehicle Technology / New England area – Dr. James McGee, [james.a.mcgee.civ@us.navy.mil](mailto:james.a.mcgee.civ@us.navy.mil)
  - Norfolk VA area - Mr. Raoul Sheridan, [raoul.p.sheridan.civ@us.navy.mil](mailto:raoul.p.sheridan.civ@us.navy.mil)
  - Florida area – Dr. Chris Heagney, [christopher.p.heagney.civ@us.navy.mil](mailto:christopher.p.heagney.civ@us.navy.mil)
  - San Diego area – Ms. Rebecca Boxerman, [rebecca.a.boxerman.civ@us.navy.mil](mailto:rebecca.a.boxerman.civ@us.navy.mil)
  - DoDEA Schools – Mr. Kevin Quinn, [kevin.quinn@c7f.tsp.navy.mil](mailto:kevin.quinn@c7f.tsp.navy.mil)
  - Sustainment technologies – Ms. Tamara Kick, [tamara.f.kick.civ@us.navy.mil](mailto:tamara.f.kick.civ@us.navy.mil)

**Link to Additional Information:** <https://www.grants.gov/web/grants/view-opportunity.html?oppId=347274>

## **9. Strategic Prevention Framework – Partnerships for Success for Communities, Local Governments, Universities, Colleges, and Tribes/Tribal Organizations, SAMHSA**

**Application Due Dates: June 5, 2023; June 5, 2024; June 5, 2025**

**Award Amount: \$375,000 per year per award for up to five years**

The purpose of this program is to help reduce the onset and progression of substance misuse and its related problems by supporting the development and delivery of community-based substance misuse prevention and mental health promotion services. The program is intended to expand and strengthen the capacity of local community prevention providers to implement evidence-based prevention programs. With this program, SAMHSA aims to strengthen state and community-level prevention capacity to identify and address local substance use prevention concerns, such as underage drinking, marijuana, tobacco, electronic cigarettes, opioids, methamphetamine, and heroin.

The SPF-PFS program is grounded in the Strategic Prevention Framework (SPF), a community engagement model grounded in public health principles, including being data-driven and focused on providing evidence-based services to underserved communities. The SPF process includes five steps (assessment, capacity, planning, implementation, and evaluation) and two guiding principles (cultural competence and sustainability). This process offers prevention planners a comprehensive approach to understanding and addressing the substance misuse and related behavioral health problems facing their communities.

SPF-PFS recipients focus on strengthening community-level prevention capacity to identify and address local substance use prevention concerns, such as underage drinking, marijuana, tobacco, electronic cigarettes, opioids, methamphetamine, and heroin. Using local, state, and national substance use public health data, recipients will identify prevention priorities in their communities, and develop and implement strategies to prevent the misuse of substances and promote mental health and well-being among youth and adults. Recipients will utilize a data-driven approach to identify underserved communities and sub-populations of focus. In accordance with Executive Order 13985, the term “underserved communities” refers to populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life. SAMHSA encourages award recipients to build strategic partnerships with key stakeholders, other community-based organizations, and local level agencies to expand the prevention infrastructure in their community.

Applicants who document that more than 50 percent of their total population(s) of focus will be in underserved communities that are greatly impacted by SUD will be awarded bonus points.

To identify underserved communities and sub-populations, the following resources are available:

- National Survey on Drug Use and Health (NSDUH):  
<https://www.samhsa.gov/data/data-we-collect/nsduh-national-survey-drug-useand-health>
- Youth Risk Behavior Surveillance System (YRBSS):  
<https://www.cdc.gov/healthyyouth/data/yrbs/index.htm>
- Behavioral Risk Factor Surveillance System (BRFSS):  
<https://www.cdc.gov/brfss/index.html>
- Monitoring the Future (MTF):  
<https://nida.nih.gov/drug-topics/trendsstatistics/monitoring-future>

The aforementioned list of resources is not a definitive list of available data resources. Applicants are encouraged to utilize other data sources and studies that include categories such as sexual orientation and gender identity to identify underserved communities and sub-populations.

SAMHSA expects recipients to use funds to implement high quality programs, practices, and policies that are recovery-

oriented, trauma-informed, and equity-based as a means of improving behavioral health.

- **Recovery** is a process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential. Recovery-oriented recipients promote partnerships with people in recovery from mental and substance use disorders and their family members to guide the behavioral health system and promote individual, program, and system-level approaches that foster: Health—managing one’s illnesses or symptoms and making informed healthy choices that support physical and emotional wellbeing; Home—a stable and safe place to live; Purpose—meaningful daily activities such as a job or school; and Community—supportive relationships with families, friends and peers. Recovery-oriented systems of care embrace recovery as: emerging from hope; person-driven; occurring via many pathways; holistic; supported by peers and allies; culturally-based and influenced; supported through relationship and social networks; involving individual, family, and community strengths and responsibility; supported by addressing trauma; and based on respect.
- **Trauma-informed Approaches** recognize and intentionally respond to the lasting adverse effects of experiencing traumatic events. A trauma-informed approach is defined through six key principles:
  - *Safety*: participants and staff feel physically and psychologically safe.
  - *Peer support*: peer support and mutual self-help are key as vehicles for establishing safety and hope, building trust, enhancing collaboration, and utilizing their lived experience to promote recovery and healing.
  - *Trustworthiness and Transparency*: organizational decisions are conducted to build and maintain trust with participants and staff.
  - *Collaboration and Mutuality*: importance is placed on partnering and leveling power differences between staff and service participants.
  - *Cultural, Historical, & Gender Issues*: culture and gender-responsive services are offered while moving beyond stereotypes/biases.
  - *Empowerment, Voice, and Choice*: organizations foster a belief in the primacy of the people who are served to heal and promote recovery from trauma.
- **Behavioral health equity** is the right to access high-quality and affordable health care services and supports for all populations regardless of the individual’s race, age, ethnicity, gender (including gender identity), disability, socioeconomic status, sexual orientation, or geographical location. By improving access to behavioral health care, promoting quality behavioral health programs and practice, and reducing persistent disparities in mental health and substance use services for underserved populations and communities, recipients can ensure that everyone has a fair and just opportunity to be as healthy as possible. In conjunction with promoting access to high quality services, behavioral health disparities can be further mitigated by addressing social determinants of health, such as social exclusion, unemployment, adverse childhood experiences, and food and housing insecurity.

**Link to Additional Information:** <https://www.samhsa.gov/grants/grant-announcements/sp-23-004>

## 10. Environmental Sustainability, NSF

**Application Deadlines: Proposal Accepted Anytime**

**Award Amounts: budgets are not limited but need to reflect the actual needs of the proposed project**

The Environmental Sustainability program is part of the Environmental Engineering and Sustainability cluster together with 1) the Environmental Engineering program and 2) the Nanoscale Interactions program.

The goal of the Environmental Sustainability program is to promote sustainable engineered systems that support human well-being and that are also compatible with sustaining natural (environmental) systems. These systems provide ecological services vital for human survival. Research efforts supported by the program typically consider long time horizons and may incorporate contributions from the social sciences and ethics. The program supports engineering research that seeks to balance society's need to provide ecological protection and maintain stable economic conditions.

There are five principal general research areas that are supported:

- **Circular Bioeconomy Engineering:** This area includes research that enables sustainable societal use of food, energy, water, nitrogen, phosphorus, and materials, with the reduction and eventual elimination of fossil fuel combustion that lacks carbon capture. The program encourages research that helps build the raw material basis for the functioning of society principally on biomass, drawing heavily on sustainable agriculture and forestry. Additionally, material flows must reduce or preferably eliminate waste, with an emphasis on closed-loop or “circular” processing.
- **Industrial ecology:** Topics of interest include advancements in modeling such as life cycle assessment, materials flow analysis, net energy analysis, input/output economic models, and novel metrics for measuring sustainable systems. Innovations in industrial ecology are encouraged.
- **Green engineering:** Research is encouraged to advance the sustainability of manufacturing processes, green buildings, and infrastructure. Many programs in the Engineering Directorate support research in environmentally benign manufacturing or chemical processes. The Environmental Sustainability program supports research that would affect more than one chemical or manufacturing process or that takes a systems or holistic approach to green engineering for infrastructure or green buildings. Improvements in distribution and collection systems that will advance smart growth strategies and ameliorate effects of growth are research areas that are supported by Environmental Sustainability. Innovations in management of storm water, recycling and reuse of drinking water, and other green engineering techniques to support sustainability may also be fruitful areas for research.
- **Ecological engineering:** Proposals should focus on the engineering aspects of restoring ecological function to natural systems. Engineering research in the enhancement of natural capital to foster sustainable development is encouraged.
- **Earth systems engineering:** Earth systems engineering considers aspects of large-scale engineering research that involve mitigation of greenhouse gas emissions, adaptation to climate change, and other global concerns.

All proposed research should be driven by engineering principles and be presented explicitly in an environmental sustainability context. Proposals should include involvement in engineering research of at least one graduate student, as well as undergraduates. Incorporation of aspects of social, behavioral, and economic sciences is welcomed.

Innovative proposals outside the scope of the four core areas mentioned above may be considered. However, prior to submission, it is recommended that the Principal Investigator contact the program director to avoid the possibility of the proposal being returned without review.

**Link to Additional Information:** <https://beta.nsf.gov/funding/opportunities/environmental-sustainability-2>

## **11. CyberCorps(R) Scholarship for Service (SFS), NSF**

**Application Deadlines: July 17, 2023**

**Award Amounts: \$27,000 per year for undergraduate students and \$37,000 per year for graduate students, also includes tuition and education-related fees and a professional allowance of \$6,000 per academic year**

The goals of the CyberCorps® SFS Program are to:

- 1) increase the number of qualified and diverse cybersecurity candidates for government cybersecurity positions.
- 2) improve the national capacity for the education of cybersecurity professionals and research and development workforce.
- 3) hire, monitor, and retain high-quality CyberCorps® graduates in the cybersecurity mission of Federal Government.
- 4) strengthen partnerships between institutions of higher education and federal, state, local, and tribal governments.

Examples of partnerships between SFS institutions and government organizations include internship agreement, advisory boards, speaker series, participation in cybersecurity task forces, etc. The SFS Program welcomes proposals to establish or to continue scholarship programs in cybersecurity. All scholarship recipients must work after graduation for a federal, state, local, or tribal government organization in a position related to cybersecurity, or as educators in the field of

cybersecurity at an SFS institution, for a period equal to at least the duration of the scholarship. A proposing institution must provide clearly documented evidence of a strong existing program in cybersecurity. In addition to information provided in the proposal narrative, such evidence may include ABET accreditation in cybersecurity; designation by the National Center of Academic Excellence in Cybersecurity (NCAE-C); or equivalent evidence documenting a strong program in cybersecurity. The SFS Program also supports efforts leading to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals.

### **SFS Scholarships**

The SFS Program provides funds to institutions of higher education for student scholarships in support of education in areas relevant to cybersecurity and cybersecurity-related aspects of other related fields as appropriate, including artificial intelligence, quantum computing, and aerospace. Each scholarship recipient, as a condition of receiving a scholarship under the SFS Program, enters into an agreement under which the recipient, upon receipt of their academic degree, agrees to work for a period equal to at least the duration of the scholarship in the cybersecurity mission of an executive agency (as defined in 5 U.S. Code § 105) or, subject to prior approval, in the cybersecurity mission of:

- Congress, including any agency, entity, office, or commission established in the legislative branch
- an interstate agency
- a state, local, or tribal government
- a state, local, or tribal government-affiliated non-profit organization that is critical infrastructure (as defined in 42 U.S. Code § 5195c(e))

The program's goal is to place all SFS students in government cybersecurity positions, with at least 70 percent of scholarship recipients securing placement in the federal government's executive branch. While SFS scholarship recipients are responsible for their own job searches, the SFS Program Office provides several tools to aid in the job search, including annual job fairs. Principal Investigators (PIs) and SFS scholarship students are expected to participate actively with the SFS Program Office to secure both a summer internship and permanent placement in the executive branch of the federal government. With permission of the SFS Program Office, a limited number of students, but no more than 20 percent of scholarship recipients, may be placed in a non-executive federal agency; state, local or tribal government organization; National Laboratories; or Federally Funded Research and Development Centers (FFRDCs).

With permission of the SFS Program Office, a limited number of students, but no more than 10 percent of scholarship recipients, may be placed as educators in the field of cybersecurity at qualified institutions of higher education that provide SFS scholarships; see <https://sfs.opm.gov/Academia/Institutions> for a list of current SFS projects. Such placement would fulfill the student's service obligation.

During the scholarship period, students must participate in meaningful summer internships related to cybersecurity. Doctoral students may be allowed to replace their summer internship with a research activity following a recommendation from their academic advisor and approval of the SFS Program Office. Students must also participate in other SFS activities supported/recommended by their institutions such as conferences, competitions workshops, and seminars. These activities are aimed at developing a community of practice that will enhance students' individual and collective skills in an area increasingly important to the security of the United States.

To be eligible for consideration for an SFS scholarship, a student must:

- be a citizen or lawful permanent resident of the United States;
- demonstrate a commitment to a career in cybersecurity;
- have demonstrated a high level of competency in relevant knowledge, skills, and abilities, as defined by the NICE Cybersecurity Workforce Framework;
- be a full-time student in a coherent formal program that is focused on cybersecurity at an awardee institution (a) with sophomore standing in an associate's degree program; or (b) with junior or senior standing in a bachelor's degree program; or (c) enrolled in a master's degree program; or (d) enrolled in a research-based doctoral program.

Each proposing institution must provide a description of its selection criteria and process. Internship placements and final job placements in government organizations typically require high-level security clearances, and scholarship recipients are required to undergo the background investigation necessary to obtain such clearances as part of the job and/or internship application process. This needs to be emphasized during the recruitment and initial counseling sessions as described below in the section on institutional responsibilities.

**Link to Additional Information:** <https://www.nsf.gov/pubs/2023/nsf23574/nsf23574.htm>

## **12. Enhancing Science, Technology, Engineering, and Math Educational Diversity (ESTEEMED) Research Education Experiences (R25 Clinical Trial Not Allowed), NIH**

### **Application Deadlines:**

- **Letter of Intent:** May 7, 2023; December 17, 2023; December 17, 2024
- **Full Proposal:** June 7, 2023; January 17, 2024; January 17, 2025

**Award Amounts:** up to \$325,000 per year

The ESTEEMED program seeks to facilitate the transition to college by providing research and educational experiences to early-stage undergraduates and to interest them in pursuing further studies as in bioengineering or other STEM fields relevant to NIBIB's scientific mission. The over-arching goal is for student participants to ultimately pursue a doctoral degree and a subsequent research career in bioengineering or NIBIB-relevant field. To accomplish this goal, this FOA will support educational activities with a primary focus on:

- **Research Experiences:** For example, to provide hands-on exposure to bioengineering research or physical/computational sciences research within the scope of NIBIB's scientific interest.
- **Courses for Skills Development:** For example, to provide preparation for hands-on exposure to research for freshmen and sophomores. At a minimum, this preparation must include a summer bridge program (or summer bootcamp) for incoming freshmen and additional activities during the freshman and sophomore academic years, including, but not limited to, seminars and/or workshops that enhance skills in the basic sciences, computation, and scientific communication as well as introduce students to the laboratory environment. Depending on the strength of the applicant institution, it is expected that academic and curriculum enhancement activities may vary in how they are formalized and integrated; various strategies, rooted in education research, may be utilized.

The program is open to incoming freshmen at the applicant institution or community college students starting their first or second year, if a collaboration with a community college is proposed. At the applicant institution, participation in ESTEEMED would begin with a Summer Bridge Program for incoming freshman and continue with two years of academic year activities followed by summer research experiences. Following the completion of the ESTEEMED program at the end of the summer after the sophomore year, participants are expected to join an honors program at the applicant institution that prepares students for graduate studies.

The ESTEEMED program is open to partnerships with community colleges. Proposed programs that focus on community college students must include all three required components (summer bridge, academic year activities for two years and summer research experiences for the following summers) and provide strong mentorship. Programs may be structured to hold any portion of the activities at the community college and/or the applicant institution. Such programs may allow students to either:

- participate in the ESTEEMED program for one year at the community college (in their first or second year), transfer to the applicant institution and continue their participation in the ESTEEMED program as a sophomore there, or
- participate in the ESTEEMED program for two years at the community college and then transfer to the applicant institution.

In both cases, after completing the two-year ESTEEMED program, the students are expected to join an honors program and complete a bachelor's degree program at the applicant institution.

A program supported by this FOA must contain the following three elements:

1. Summer Bridge Program - is to occur before the start of the freshman year to prepare student participants, in bootcamp-style, for their first year of college. The bootcamp should introduce students to the ESTEEMED program and provide a review of basic topics and skills necessary for success. It must take place during the summer before the freshman year, last at least five weeks, emphasize basic sciences, computation, and science communication, and provide survival skills to help participants transition from high school to college, such as socialization/networking and strong time management and organizational skills. Summer Bridge Programs are encouraged to incorporate mentoring of incoming freshman participants by rising sophomores in the ESTEEMED program.
2. Academic Year Activities - In addition to continuing to emphasize basic sciences, computation, and science communication during the freshman and sophomore academic years, the Academic Year Activities should help participants maximize their academic performance and prepare them for summer research experiences and eventual entry into an honors program. Academic year activities should include, but are not limited to, courses, journal clubs, individual development plans for each participant, seminars/workshops, professional development programs, internal and external speakers to introduce the students to different career paths, and participation in national scientific meetings. Activities such as workshops on scientific presentation and writing that promote scientific communication skills are highly encouraged. There should be an increasing sophistication in these activities as participants proceed from the freshman to the sophomore year.
3. Summer Research Experience - At the end of their freshman and sophomore years, participants are required to take part in hands-on summer research experiences that involve a defined research project and includes a final oral presentation and written report of their work. Research experiences can take place in an on-campus laboratory or can be an off-campus research experience in an academic or industrial or NIH/NIBIB laboratory research setting. The Summer Research Experience is expected to last at least eight weeks or most of the summer.

In addition, applications to this FOA must address the following two elements:

- Mentoring
- Honors Program

**Link to Additional Information:** <https://grants.nih.gov/grants/guide/pa-files/PAR-23-114.html>

### **13. Particulate and Multiphase Processes, NSF**

**Application Deadlines: Proposal Accepted Anytime**

**Award Amounts: budgets are not limited but need to reflect the actual needs of the proposed project**

The Particulate and Multiphase Processes program is part of the Transport Phenomena cluster, which also includes 1) the Combustion and Fire Systems program; 2) the Fluid Dynamics program; and 3) the Thermal Transport Processes program.

The goal of the Particulate and Multiphase Processes program is to support fundamental research on physico-chemical phenomena that govern particulate and multiphase systems, including flow of suspensions, drops and bubbles, granular and granular-fluid flows, behavior of micro- and nanostructured fluids, unique characteristics of active fluids, and self-assembly/directed-assembly processes that involve particulates. The program encourages transformative research to improve our basic understanding of particulate and multiphase processes with emphasis on research that demonstrates how particle-scale phenomena affect the behavior and dynamics of larger-scale systems. Although proposed research should focus on fundamentals, a clear vision is required that anticipates how results could benefit important applications in advanced manufacturing, energy harvesting, transport in biological systems, biotechnology, or environmental sustainability. Collaborative and interdisciplinary proposals are encouraged, especially those that involve a combination of

experiment with theory and/or modeling.

Major research areas of interest in the program include:

- **Multiphase flow phenomena:** Dynamics of particle/bubble/droplet systems, behavior of structured fluids (colloids/ferro-fluids), granular flows, rheology of multiphase systems, unique characteristics of active fluids in novel applications, and new approaches that relate micro- and nanoscale phenomena to macroscale properties and process-level variables.
- **Particle science and technology:** Aerosols, production of particles and polymer-particle complexes with engineered properties, self-assembly, directed assembly, and template-directed assembly of particles into functional materials and devices.
- **Multiphase transport in biological systems:** Analysis of physiological processes, applications of functionalized nanostructures in clinical diagnostics and therapeutics.
- **Interfacial transport:** Dynamics of particles and macromolecules at interfaces, kinetics of adsorption and desorption of nanoparticles and surfactants and their spatial distributions at interfaces, complex molecular interactions at interfaces, formation of interfacial complexes that affect the dynamics of particles.

Innovative proposals outside of these specific interest areas may be considered; however, prior to submission, it is recommended that the PI contact the program director to avoid the possibility of the proposal being returned without review.

*NOTE:* Proposals that explore fluid-structure interactions involving electrodes in engineering applications such as energy storage should be directed to ENG/CBET **Electrochemical Systems** program. Proposals that involve drops or bubbles bouncing off solid surfaces should be directed toward ENG/CBET **Fluid Dynamics** program. Proposals that deal with engineered surfaces for carrying out chemical or biochemical reactions or separations should be directed to ENG/CBET **Interfacial Engineering** program. Proposals dealing mainly with particle synthesis may be more suitable for the ENG/CMMI **Advanced Manufacturing** program or the Division of Materials Research (DMR) in the Mathematical and Physical Sciences (MPS) Directorate.

**Link to Additional Information:** <https://beta.nsf.gov/funding/opportunities/particulate-multiphase-processes-2>

## **14. Thermal Transport Processes (TTP), NSF**

**Application Deadlines: Proposal Accepted Anytime**

**Award Amounts: budgets are not limited but need to reflect the actual needs of the proposed project**

The Thermal Transport Processes program is part of the Transport Phenomena cluster, which also includes 1) the Combustion and Fire Systems program; 2) the Fluid Dynamics program; and 3) the Particulate and Multiphase Processes program.

The Thermal Transport Processes program supports engineering research projects that lay the foundation for new advances in thermal transport phenomena. These projects should either develop new fundamental knowledge or combine existing knowledge in thermodynamics, fluid mechanics, and heat and mass transfer to probe new areas of innovation in thermal transport processes. The program seeks transformative projects with the potential for improving basic understanding, predictability and application of thermal transport processes. Projects should articulate the contribution(s) to the fundamental knowledge supporting thermal transport processes and state clearly the potential application(s) impact when appropriate. Projects that combine analytical, experimental and numerical efforts, geared toward understanding, modeling and predicting thermal phenomena, are of great interest. Collaborative and interdisciplinary proposals for which the main contribution is in thermal transport fundamentals are also encouraged. Emphasis is placed on research that demonstrates how thermal transport phenomena affect the existence, behavior and dynamics of components and systems. Priority is given to insightful investigations of fundamental problems with clearly defined economic, environmental and societal impacts.



Some specific areas of interest include:

- **Convection/diffusion/radiation:** Heat and mass transport in complex structures and surfaces; thermal-related turbulence; development of form-function relationships in thermal processes; thermal design methodology; phonon transport and interactions between energy carriers; radiation amplification, controlling, and extinction; interfacial gas-solid and liquid-solid thermal and species-driven phenomena.
- **Thermodynamics:** Thermal-electric energy conversion; battery-related thermal issues; power generation and propulsion; phase-change and supercritical energy cycles; non-equilibrium thermal processes.
- **Biological heat and mass transport:** Biomimicry; intra- and extra-cellular heat and mass transport; freeze resistance mechanisms; thermotherapy and thermoregulation; organ conservation (freezing and thawing); mass transport in biomedical and health systems.
- **Nanothermics, microthermics, and mesothermics:** Scaling up nanoscale heat transport processes or coupled heat-mass transport processes; utilization of new multi-functional, meta- and graded-materials in thermal transport; nano-texturing and phase-change; multi-scale thermal transport in a process.
- **Thermal solutions to climate change:** Decarbonizing industrial processes; novel heating and cooling technologies with minimal greenhouse gas emissions; thermal-driven clean energy concepts; thermal and thermochemical energy storage; waste heat recovery and transmission; thermal science and technology to enable electrification of energy services.
- **Thermal science and quantum technology interface:** Quantum sensors for thermal measurements; quantum computing for thermal sciences; thermodynamics and novel cryogenic cooling concepts for quantum devices; thermal transport in quantum materials and quantum phenomena; thermal solutions for next-generation qubits, qubit coupling, and quantum information storage.
- **New metrology and artificial intelligence (AI)/machine learning methodologies in thermal sciences:** Advanced thermal imaging and measurement techniques for high-resolution in situ thermal imaging and non-invasive temperature measurement; novel AI/machine learning methodologies and other data-intensive approaches that can be coupled with physics-based models and/or experiments to enable new understanding and discoveries in thermal transport processes.

*NOTE:* Proposals including chemical kinetics should be submitted to the ENG/CBET **Combustion and Fire Systems** program. Proposals dealing mainly with materials synthesis, processing and characterization should be directed to the ENG/CMMI **Advanced Manufacturing** program or the Division of Materials Research (DMR) in the Directorate for Mathematical and Physical Sciences (MPS). Proposals at the interface of computational/mathematical sciences and thermal transport are encouraged but should be submitted to the **Computational and Data-Enabled Science & Engineering** (CDS&E) program.

**Link to Additional Information:** <https://beta.nsf.gov/funding/opportunities/thermal-transport-processes-ttp>

## 15. Interfacial Engineering, NSF

**Application Deadlines: Proposal Accepted Anytime**

**Award Amounts: budgets are not limited but need to reflect the actual needs of the proposed project**

The Interfacial Engineering program is part of the Chemical Process Systems cluster, which also includes: 1) the Catalysis program; 2) the Electrochemical Systems program; and 3) the Process Systems, Reaction Engineering, and Molecular Thermodynamics program.

The goal of the Interfacial Engineering program is to support fundamental research on atomic- and molecular-scale interfacial phenomena and engineering of interfacial properties, processes, and materials. Fundamental understanding of the thermodynamic, kinetic, and transport properties of interfacial systems underpins improvements in chemical process efficiency and resource utilization. As such, proposed research should have a clear vision for how the results will translate to practice in or otherwise advance industrial chemical or biochemical processes. The program encourages proposals that present new approaches to long-standing challenges or address emerging research areas and technologies. Collaborative and interdisciplinary proposals are also encouraged, particularly those that involve a

combination of experiment with theory or modeling.

Major research areas of interest in the program include:

- **Chemical separations:** Design of scalable mass separating agents (for example, sorbents and membranes); field-induced separation processes that target a significant reduction in energy and/or materials requirements
- **Biological separations:** Downstream processing of biologically-derived chemicals, therapeutic proteins, and biologics for increased throughput and purity; engineering interfaces for molecular recognition
- **Interfacial phenomena at engineered interfaces and surfaces:** Kinetics and thermodynamics of adsorption/desorption and complex interactions of molecules and ions at engineered interfaces and surfaces within chemical process systems
- **Nanoconfinement and engineered surfaces:** Theory, modeling, and/or approaches for examining transport and thermodynamic properties of fluids within nanopores, under nanoconfinement, or at highly engineered surfaces within chemical process systems.

*NOTE:* Studies that examine chemical reaction and transport phenomena related to electrochemical system performance, including batteries, fuel cells, flow batteries, electrochemical conversions, and related components, should be directed to the Electrochemical Systems program (CBET 7644). Studies that focus on interactions of nanomaterials and nanosystems, particularly as relevant to environmental or biological applications, may be more appropriate for the Nanoscale Interactions program (CBET 1179). Studies of how interfacial dynamics affect transport or bulk properties of multiphase systems may be more appropriate for the Particulate and Multiphase Processes program (CBET 1415). Please consult with program directors prior to submission if you have questions about programmatic fit.

**Link to Additional Information:** <https://beta.nsf.gov/funding/opportunities/interfacial-engineering-0>

## 16. Nanoscale Interactions, NSF

**Application Deadlines: Proposal Accepted Anytime**

**Award Amounts: budgets are not limited but need to reflect the actual needs of the proposed project**

The Nanoscale Interactions program is part of the Environmental Engineering and Sustainability cluster, which also includes: 1) the Environmental Engineering program; and 2) the Environmental Sustainability program.

The goal of the Nanoscale Interactions program is to support research to advance fundamental and quantitative understanding of the interactions of nanomaterials and nanosystems with biological and environmental media.

Materials of interest include one- to three-dimensional nanostructures, heterogeneous nano-bio hybrid assemblies, dendritic and micelle structures, quantum dots, and other nanoparticles. Such nanomaterials and systems frequently exhibit novel physical, chemical, photonic, electronic, and biological behavior as compared to the bulk scale. Collaborative and interdisciplinary proposals are encouraged.

Research areas supported by the program include:

- Characterization of interactions at the interfaces of nanomaterials and nanosystems, including both simple nanoparticles and complex and/or heterogeneous composites and nanosystems, with surrounding biological and environmental media.
- Development of predictive tools based on the fundamental behavior of nanostructures to advance cost-effective and environmentally benign processing and engineering solutions over full-life material cycles.
- Examination of the transport, interaction, and impact of nanostructured materials and nanosystems on biological systems and the environment.
- Simulations of nanoparticle behavior at interfaces, in conjunction with experimental comparisons, and new theories and simulation approaches for determining the transport and transformation of nanoparticles in various media.

- Investigations of quantum vibronic and spin phenomena with correlations to nano phenomena.

The Nanoscale Interactions program will support exploratory research projects on nanoscale interactions of quantum effects which explain macroscopic changes and physiological and metabolic processes; investigate quantum vibration and electron spin to elucidate nano phenomena and produce quantitative data and evidence of quantum effects.

Research in these areas will enable the design of nanostructured materials and heterogeneous nanosystems with desired chemical, electronic, photonic, biological, and mechanical properties for optimal and sustainable handling, manufacture, and utilization.

*NOTE:* Studies that focus on fundamental research concerning atomic- and molecular-scale interfacial phenomena and engineering of interfacial properties, processes, and materials, particularly as relevant towards advancing industrial chemical or biochemical processes, may be more appropriate for the Interfacial Engineering program (CBET 1417). Please consult with program directors prior to submission if you have questions about programmatic fit.

**Link to Additional Information:** <https://beta.nsf.gov/funding/opportunities/nanoscale-interactions-0>

## 17. Centers for Chemical Innovation (CCI), NSF

### Application Deadlines:

- **Preliminary Proposal: August 10, 2023**
- **Full Proposal:**
  - **Phase I (invitation only): February 7, 2024**
  - **Phase II: October 18, 2023**

### Anticipated Award Amounts:

- **Phase I awards: each up to \$1,800,000 for 3 years**
- **Phase II award: up to \$4,000,000 per year for 5 years**

CCI awards support the formation and development (Phase I) or sustained funding (Phase II) of research centers that can address major research challenges in fundamental chemistry. Successful centers will tackle challenges of large scope and impact, producing transformative research leading to innovation and enhanced economic competitiveness. CCI awards will bring researchers with shared and complementary interests into productive contact to foster synergy, potentially transformative research, and innovation.

The Division of Chemistry is considering new Phase I proposals and Phase II proposals in FY 2024. Both phases are described in this solicitation. There are no institutional limits on the number of preliminary proposals or full proposals; however, new Phase I preliminary proposals and full proposals from institutions currently leading a CCI effort (Phase I or Phase II) are discouraged.

The CCI Program is intended to support science that cannot be effectively done by individual investigators or small teams, but requires the synergistic, coordinated efforts of a research center. The potential for synergy is explicitly evaluated during the review process. At the same time, Principal Investigators should ensure that their proposed project does not significantly overlap with ongoing Federally funded research for themselves or any of their team members. Developing a distinct and distinctive science portfolio is essential for any CCI.

CCIs are expected to integrate their research with activities that broaden the impact of their research. A Phase I team will pilot activities in these areas. A Phase II CCI is expected to implement broad, strategic, center-scale activities in each of the areas below:

- **Innovation** - A center-wide plan for innovation will demonstrate strategies and capabilities for translating their research to key non-academic stakeholders via intellectual property protection, licensing, entrepreneurship, partnerships, development and distribution of open source tools, or other knowledge transfer paths.

- **Higher Education and Professional Development** - center-wide plan for the education and professional development of undergraduate and graduate students supported by the CCI, including co-mentorship or other collaborative education and continued professional development and mentoring for postdoctoral research associates. This may also include education in various aspects of innovation (intellectual property, entrepreneurship, etc.) and other higher education activities (i.e., new undergraduate- or graduate-level course materials or curricula).
- **Broadening participation** - center-wide plans for increasing engagement by underrepresented groups. Partnerships with Minority-Serving Institutions are strongly encouraged.
- **Informal science communication** - center-wide plans for communicating the CCI research to public audiences (outside the K-12 classroom).

### Phase I Centers for Chemical Innovation

The FY 2024 Phase I CCI competition is open to projects in all fields supported by the Division of Chemistry, and must have scientific focus and significant potential for transformative impact in chemistry. The NSF Division of Chemistry particularly encourages fundamental chemistry projects aligned with articulated budget priorities, including Advanced Manufacturing, Artificial Intelligence, Biotechnology, Quantum Information Science and Climate Research and Sustainability.

A Phase I awardee must engage in research, broader impact activities, and center development activities over the three-year duration of this award. The research activities may build on pre-existing efforts, but new, collaborative results attributed to the CCI award are expected. The Phase I award will also develop broader impact activities in the four required areas (see below), including piloting and developing center-scale activities. Center development includes the development of a strategic plan covering all aspects of a CCI (see below).

The team of investigators for a Phase I proposal must include at least four senior researchers with complementary expertise. While there is no upper limit on the number of Phase I investigators, proposers are cautioned to avoid teams that are too large to collaborate effectively. The available resources should also be carefully considered in assembling the team. CCIs may collaborate with researchers from industry, national laboratories and international organizations. See detailed guidance above for non-U.S. or non-academic researchers.

Key milestones during Phase I include submission of the strategic plan (15 months); mandatory oversight review (16-18 months after the start of the Phase I award); submission of a Phase II proposal (approximately 25 months after the start date of the Phase I award); and a review of the Phase II proposal (approximately 30 months after the start of the Phase I award). During the panel review of the Phase II proposal, the proposing teams will be invited to participate in a short video-conference presentation and discussion with the panel.

### Phase II Centers for Chemical Innovation

In FY 2024, CHE will consider new Phase II proposals resulting from Phase I awards initiated in FY 2021. There is no minimum or maximum number of investigators in a Phase II proposal. The teams may include investigators from other disciplines, but the CCI should retain a clear focus in scientific areas supported by the NSF Division of Chemistry.

Key milestones during Phase II include site visits and other oversight. The initial Phase II award is made for five years (contingent on acceptable progress). A proposal and its thorough review are required for renewal of up to five additional years (for a total of up to 10 years funding at Phase II). Additional information is provided in the proposal preparation guidance for a Phase II full proposal.

*NOTE:* Investigators are strongly urged to contact a cognizant Program Officer when considering submitting a preliminary proposal or proposal.

**Link to Additional Information:** <https://www.nsf.gov/pubs/2023/nsf23575/nsf23575.htm>

## **18. Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII), NSF**

**Application Deadline: September 30, 2023**

**Anticipated Award Amount: up to \$175,000 for a period of 24 months**

This solicitation encourages potentially transformative proposals in any area of CISE research from PIs who are in their first academic position post-PhD and are affiliated with (1) an Institution of Higher Education that is not a Carnegie Classification R1 institution as of the relevant submission deadline, or (2) non-profit, non-academic institutions. A Department Chair/Head Letter template [<https://www.nsf.gov/cise/cree/deptchair.pdf>] must be used to affirm PI eligibility.

The CRII program is part of CISE's strategy to increase its investments in the development and growth of the research capabilities of future generations of computer and information scientists and engineers, including computational and data scientists and engineers. This solicitation provides the opportunity for early-career researchers who do not have adequate organizational or other means of support to pursue their early-career research, including to recruit and mentor their first graduate students (or undergraduate students, in the case of faculty at undergraduate and two-year institutions), which is one critical step in a career pathway that is expected to lead to research independence and a subsequent stream of projects, discoveries, students and publications.

CRII awards will be given to researchers to undertake exploratory investigations, to acquire and test preliminary data, develop collaborations within or across research disciplines, and/or develop new algorithms, approaches, and system designs/prototypes, which together or separately may lead to improved capacity to write successful proposals submitted to other programs in the future. PIs should be aware that reviewers will be asked to consider the following, for each proposal: 1) the potential of the research initiation activities to produce sufficient preliminary results to serve as the basis for future competitive research proposals; and 2) whether the activities are seen to be the necessary and critical steps for the PI to launch their research career.

Early-career researchers who are members of groups that have typically been underrepresented or under-served in CISE areas are especially encouraged to apply. Underrepresented groups in CISE areas include women, Hispanics, African Americans, Native Americans and Indigenous Peoples, and persons with disabilities.

**Link to Additional Information:** <https://www.nsf.gov/pubs/2023/nsf23576/nsf23576.htm>

### **Proposals Accepted Anytime**

1. Division of Environmental Biology, NSF  
<https://www.nsf.gov/pubs/2022/nsf22541/nsf22541.pdf>
2. Computational and Data-Enabled Science and Engineering in Mathematical and Statistical Sciences, NSF  
<https://beta.nsf.gov/funding/opportunities/computational-and-data-enabled-science-and-engineering-mathematical-and>
3. Condensed Matter and Materials Theory (CMMT), NSF  
[https://www.nsf.gov/pubs/2022/nsf22610/nsf22610.htm#pgm\\_desc\\_txt](https://www.nsf.gov/pubs/2022/nsf22610/nsf22610.htm#pgm_desc_txt)
4. Division of Materials Research: Topical Materials Research Programs (DMR: TMRP), NSF  
<https://www.nsf.gov/pubs/2022/nsf22609/nsf22609.htm>
5. Research in the Formation of Engineers, NSF  
<https://beta.nsf.gov/funding/opportunities/research-formation-engineers-rfe>
6. Computer and Information Science and Engineering (CISE): Core Programs, NSF – Small Projects  
<https://www.nsf.gov/pubs/2022/nsf22631/nsf22631.htm>

7. Manufacturing Systems Integration (MSI), NSF  
<https://beta.nsf.gov/funding/opportunities/manufacturing-systems-integration-msi>
8. Cybersecurity Innovation for Cyberinfrastructure (CICI), NSF  
<https://www.nsf.gov/pubs/2023/nsf23532/nsf23532.htm>
9. Division of Molecular and Cellular Biosciences Core Programs (MCB), NSF  
<https://www.nsf.gov/pubs/2023/nsf23548/nsf23548.htm>
10. Division of Integrative Organismal Systems Core Programs, NSF  
<https://www.nsf.gov/pubs/2023/nsf23547/nsf23547.htm>
11. Electronics, Photonics and Magnetic Devices (EPMD), NSF  
<https://beta.nsf.gov/funding/opportunities/electronics-photonics-magnetic-devices-epmd-0>
12. Plant Genome Research Program (PGRP), NSF  
<https://www.nsf.gov/pubs/2023/nsf23559/nsf23559.htm#elig>
13. Communications, Circuits, and Sensing-Systems (CCSS), NSF  
<https://beta.nsf.gov/funding/opportunities/communications-circuits-sensing-systems-ccss-0>
14. Fluid Dynamics, NSF  
<https://beta.nsf.gov/funding/opportunities/fluid-dynamics-2>

### **Announcing Previous Important Funding Opportunities**

1. Grants to Reduce Domestic Violence, Dating Violence, Sexual Assault, and Stalking on Campus Program Solicitation, Department of Justice  
**Deadline: May 4, 2023**  
<https://www.grants.gov/web/grants/view-opportunity.html?oppId=346754>
2. Humanities Initiatives at Hispanic-Serving Institutions, NEH  
**Deadline: May 9, 2023**  
<https://www.neh.gov/program/humanities-initiatives-colleges-and-universities>
3. Accelerating Research Translation (ART), NSF  
**Deadline: May 9, 2023; September 18, 2024**  
[https://www.nsf.gov/pubs/2023/nsf23558/nsf23558.htm#pgm\\_desc\\_txt](https://www.nsf.gov/pubs/2023/nsf23558/nsf23558.htm#pgm_desc_txt)
4. IUSE / Professional Formation of Engineers: Revolutionizing Engineering Departments (IUSE/PFE: RED), NSF  
**Deadline: May 10, 2023**  
<https://www.nsf.gov/pubs/2023/nsf23553/nsf23553.htm>
5. Ensuring Research Integrity - Research, Development, and Demonstration, DHHS  
**Deadline: May 10, 2023**  
<https://www.grants.gov/web/grants/view-opportunity.html?oppId=342411>
6. Defense University Research Instrumentation Program (DURIP), DoD  
**Deadline: May 12, 2023**  
<https://www.grants.gov/web/grants/view-opportunity.html?oppId=346064>

7. Mid-scale Research Infrastructure-2 (Mid-scale RI-2), NSF  
**Deadline: LOI: May 15, 2023; Preliminary Prop: June 20, 2023; Full Proposal: December 18, 2023**  
<https://www.nsf.gov/pubs/2023/nsf23570/nsf23570.htm>
8. Research and Development, NEH  
**Deadline: May 16, 2023**  
<https://www.nsf.gov/pubs/2023/nsf23537/nsf23537.htm>
9. Preservation and Access Education and Training, NEH  
**Deadline: May 16, 2023**  
<https://www.neh.gov/grants/preservation/preservation-and-access-education-and-training>
10. Research and Evaluation on Sentencing and Resentencing, National Institute of Justice  
**Deadline: May 16, 2023**  
<https://nij.ojp.gov/funding/opportunities/o-nij-2023-171637>
11. Open Textbooks Pilot Program-Fund for the Improvement of Postsecondary Education, Dept. of Education  
**Deadline: May 16, 2023**  
<https://www.govinfo.gov/content/pkg/FR-2023-03-17/pdf/2023-05456.pdf>
12. Upholding the Rule of Law and Preventing Wrongful Convictions Program, Dept. of Justice  
**Deadline: May 17, 2023**  
<https://bja.ojp.gov/funding/opportunities/o-bja-2023-171677>
13. Strengthening Institutions Program, Dept. of Education  
**Deadline: May 22, 2023**  
<https://www.govinfo.gov/content/pkg/FR-2023-03-23/pdf/2023-05922.pdf>
14. NIMH Short Courses for Mental Health Related Research (R25 -Independent Clinical Trial Not Allowed), NIH  
**Deadline: May 25, 2023**  
<https://grants.nih.gov/grants/guide/pa-files/PAR-23-265.html>
15. NIMH Mentoring Networks for Mental Health Research Education (R25 Clinical Trial Not Allowed), NIH  
**Deadline: May 25, 2023**  
<https://grants.nih.gov/grants/guide/pa-files/PAR-23-263.html>
16. Partnerships for Research Innovation in the Mathematical Sciences (PRIMES), NSF  
**Deadline: May 26, 2023**  
<https://www.nsf.gov/pubs/2023/nsf23560/nsf23560.htm>
17. Digital Projects for the Public, NEH  
**Deadline: June 14, 2024**  
<https://www.neh.gov/grants/public/digital-projects-the-public>
18. NHPRC-Mellon Planning Grants for Collaborative Digital Editions in African American, Asian American, Hispanic American, and Native American History and Ethnic Studies, National Archives  
**Deadline: June 7, 2023**  
<https://www.archives.gov/nhprc/announcement/digitaleditions>
19. Community Level Interventions to Improve Minority Health and Reduce Health Disparities (R01 - Clinical Trial Optional), NIH  
**Deadline: July 7, 2023**  
<https://grants.nih.gov/grants/guide/rfa-files/RFA-MD-23-004.html>

20. Humanities Collections and Reference Resources, NEH  
**Deadline: July 18, 2023**  
<https://www.neh.gov/grants/preservation/humanities-collections-and-reference-resources>
21. Multidisciplinary Research Program of the University Research Initiative (MURI), Department of Defense  
**Deadline: September 8, 2023**  
<https://www.grants.gov/web/grants/view-opportunity.html?oppId=346282>
22. Major Research Instrumentation (MRI) Program: Instrument Acquisition or Development, NSF  
**Deadline Window Date(s): October 16, 2023 - November 15, 2023**  
<https://www.nsf.gov/pubs/2023/nsf23519/nsf23519.htm>
23. Research and Mentoring for Postbaccalaureates in Biological Sciences (RaMP), NSF  
**Deadline: January 18, 2024**  
<https://www.nsf.gov/pubs/2023/nsf23514/nsf23514.htm>





# Universidad *de Puerto Rico*

**LA MEJOR EDUCACIÓN A TU ALCANCE**

VICEPRESIDENCIA DE RECURSOS EXTERNOS  
ADMINISTRACIÓN CENTRAL