Oportunidades de Fondos Externos
ACADEMIC YEAR 2020 - 21 / VOLUME XII
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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 03/26/2021 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 or MS Teams.

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1. Broadening Participation in Computing, National Science Foundation

Application Deadline: June 14, 2021

The Broadening Participation in Computing program (BPC) aims to significantly increase the number of U.S. citizens and permanent residents receiving post-secondary degrees in the computing disciplines, and to encourage participation of other underrepresented groups in the discipline. These groups may include women, persons with disabilities, Blacks and African Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians, and Pacific Islanders. With this solicitation, the BPC program seeks to engage the computing community to develop and implement innovative methods, frameworks, and strategies to improve recruitment and retention of these students through undergraduate and graduate degrees. Projects that target stages of the academic pipeline through faculty ranks are encouraged. All BPC projects must have the potential for widespread, national impact. That is, they should either develop an effective practice that could be widely deployed, or they should deploy existing effective practices to reach larger audiences.

The BPC program will support three categories of awards: Alliances, Demonstration Projects, and Supplements.

Alliances are broad coalitions of academic institutions of higher learning, K-12 schools, government, industry, professional societies, and other not-for-profit organizations that design and carry out comprehensive programs addressing underrepresentation in the computing disciplines. They have a large regional or national scope. Alliances operate across multiple stages of the academic pipeline and address one or several intended groups that are underrepresented. Collectively, Alliances serve as a national resource for achieving the transformation of computing education.

Existing Alliances with documented evidence of national impact on broadening participation in computing may apply for additional funding. An Alliance Extension increases the duration of the Alliance award as well as its scope, introducing additional student groups to be reached, partners, and/or projects with the intended purpose of significant impact to the populations served.

Demonstration Projects (DPs) are more focused than Alliance projects. Typical DPs pilot innovative programs that, once fully developed, could be incorporated into the activities of an existing or new Alliance, or otherwise scaled up for widespread impact. Examples include projects proposed by a single institution or those that focus on a single underrepresented community, a single point in the academic pathway, or a single impediment to full participation in computing. Demonstration projects should contribute knowledge to our understanding of effective teaching and learning of computing for students from groups underrepresented in computing.

Both Alliances and Demonstration Projects have significant evaluation efforts with both formative and summative components. Competitive projects will have significant impact both in the quality of opportunities afforded to participants and in the number of participants potentially served.

Supplements to existing CISE research awards are intended to engage more members of the computing research community in significant BPC efforts as part of a project's BPC plan.

Specifically, the BPC program aims to develop, implement and evaluate innovative models, frameworks, and strategies for the inclusion of groups that are underrepresented from K-12 through the computing workforce, with an emphasis on transformational efforts that lead to more inclusive organizational structures and practices. Activities should have significant impact both in the quality of opportunities afforded to participants and in the number of participants potentially served. While the emphasis is on the implementation of programs, BPC projects may include complementary, focused research that has the potential for enhancing project activities and meeting project goals along with helping to build a repository of knowledge to grow national impact. Thus, PIs are encouraged to include scientists with appropriate expertise in any research, evaluation, and assessment activities.

Institutions with documented success in awarding computing-related degrees to students from groups underrepresented in computing are strongly encouraged to participate. Partnerships with Minority-Serving Institutions, Community Colleges, and institutions with strong programs serving persons with disabilities are also encouraged. Where appropriate, and particularly at the K-12 level, BPC projects should partner with community and national organizations that provide formal or informal education activities.

To be competitive, all BPC proposals must include evaluation and assessment components that can effectively document both successes and failures. Awardees must set (and meet) measurable goals and collect evidence to determine progress toward those goals. Awardees must also participate in a BPC program-level evaluation, supplying data that is disaggregated by ethnicity, gender, and discipline (but not further disaggregated to the individual level; NSF does not seek data on individuals).

Link to Additional Information: https://www.nsf.gov/pubs/2021/nsf21571/nsf21571.pdf

2. Materials and Chemical Sciences Research for Direct Air Capture of Carbon Dioxide, Department of Energy

Application Deadline: May 18, 2021

The DOE SC program in Basic Energy Sciences (BES) announces its interest in receiving applications from single investigators and from teams for support of experimental and theoretical efforts to advance fundamental understanding of the capture of carbon dioxide (CO2) from dilute sources including combined capture and chemical conversion of CO2. Although direct air capture of carbon dioxide (DAC) generally refers to the capture of CO2 from ambient air, this FOA also considers the removal of CO2 from partially concentrated air (e.g., building HVAC exhaust) and from natural fluids (e.g., the ocean and surface waters) that received their CO2 directly from ambient air. Enhanced understanding of scientific phenomena and approaches for DAC would accelerate progress and strengthen the foundation for applications that deliver economic benefit and/or energy security.

BES seeks innovative fundamental research in three topical areas:

1. Novel Energy Transfer Mechanisms for Regeneration of and Mass Transport in Direct Air Capture Systems;
2. Understanding Temporal Changes That Occur during Separations; and
3. Science Driven Synthesis and Assembly of Innovative Materials for Direct Air Capture.

The BES mission is to support fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels to provide the foundations for new energy technologies and to support DOE missions in energy, environment, and national security. BES also supports world-class, open-access scientific user facilities consisting of a complementary set of intense x-ray sources, neutron sources, and research centers for nanoscale science.
Applications must emphasize hypothesis-driven fundamental research to transform the understanding of separation mechanisms or materials synthesis and assembly strategies. Research should leverage the latest advances in theory, simulation, data science, synthesis, and characterization to develop this understanding. Research should include consideration of the impact of varying amounts of water in the CO2 source phase. The prevalence of moist air conditions (average relative humidity in the atmosphere exceeding 50%1) requires understanding the role water molecules can play in the separation and subsequent conversion processes.
Applications that emphasize engineering, device optimization, or designing/building carbon capture systems may be declined without further review.

Further information about BES research programs can be found at:

- Chemical Sciences, Geosciences, and Biosciences: https://science.osti.gov/bes/csgb
- Materials Sciences and Engineering: https://science.osti.gov/bes/mse

Link to Additional Information: Go to www.grants.gov and search for Funding Opportunity **DE-FOA-0002481**

3. Tropical Medicine Research Centers, Department of Health and Human Services, National Institutes of Health

Application Deadline: June 18, 2021

This funding opportunity announcement (FOA) solicits research applications focused on the etiology, epidemiology, pathogenesis, clinical manifestations, diagnosis, prevention, treatment and control of select Neglected Tropical Diseases (NTDs) in endemic areas. The Tropical Medicine Research Centers (TMRCs) are intended to advance NIAIDs global research effort by targeting research endeavors to: develop novel diagnostic, prevention and therapeutic strategies adapted for the unique needs of low and middle-income countries (LMICs), as classified by the World Bank; create and sustain in-country research capacity; stimulate scientific collaboration and global partnerships; work with in-country scientists to develop training; provide opportunities for junior and early-stage investigators to conduct research on NTDs; and facilitate sample sharing to support translational research to develop or evaluate new drugs, diagnostics, vaccines, therapeutics, or vector control strategies.

Neglected Tropical Diseases (NTDs) are a major global health problem affecting nearly 1.6 billion people, most of whom live in the world's least developed countries. NTDs are caused by a wide range of organisms and can be transmitted by a variety of vectors and intermediate hosts (mosquitoes, sand flies, black flies, tsetse flies, triatomine insects, and snails) as well as by contaminated water, food and soil. Since available medical or public health measures are currently inadequate to control most NTDs, research is urgently needed to identify and evaluate new tools and interventions. Efforts are also needed to strengthen local research capacity and infrastructure in endemic areas.

The TMRC program was initiated in 1991 with the goal of building Tropical Medicine Research Centers on-site in NTD endemic countries to support clinical and field research. NIAID currently supports seven TMRCs operating in six countries: Brazil, Colombia, Ghana, India, Peru, and Sri Lanka. Historically, an outcome of this research program has been increased capacity of TMRC awardees to support independent research activities, conduct future clinical trials, and implement new treatment, prevention, and vector control strategies.

Research Objectives and Scope

The scope of the research to be supported under this FOA is limited to the following NTDs: schistosomiasis, hookworm infection, ascariasis, leishmaniasis, trypanosomiasis, Chagas' Disease, trichuriasis, leprosy, lymphatic filariasis, trachoma, onchocerciasis, dracunculiasis, Buruli ulcer, echinococcosis, taeniasis and cysticercosis, and food-borne trematodiases. Each TMRC must design and conduct research on NTDs in endemic areas, and studies must address one or more of the following research areas: genomics, epidemiology, diagnostics, transmission, immunology, and pathogenesis. Translational research on diagnostics to support product development and inform targeted intervention strategies is encouraged. TMRCs should try to leverage recent state-of-the-art technologies for product development, modeling, and surveillance strategies.

The TMRCs are encouraged to collaborate and leverage relationships with other NIH global health research programs, including the International Centers of Excellence for Malaria Research (ICEMR), Centers for Research on Emerging Infectious Diseases (CREID), Centers for AIDS Research (CFAR), Centers of Excellence for Influenza Research and Surveillance (CEIRS), International Centers for Excellence in Research (ICER), as well as similar programs funded by other organizations.

Research may be focused on a single pathogen or multiple pathogens. Multi-disciplinary research and/or research on more than one pathogen causing NTDs is encouraged. Research to be supported by the TMRC program will require clinical and field site development, as well as access to endemic populations. Research must involve human subjects, vectors, and/or specimen collections from endemic area field sites. Research areas may include, but are not limited to, the following activities:

- Study of biomarkers;
- Development and/or evaluation of diagnostics;
- Vectors, intermediate hosts and transmission;
- Study of co-infections (excluding HIV).

Link to Additional Information: http://grants.nih.gov/grants/guide/rfa-files/RFA-AI-21-004.html

4. Enhancing Innovations in Advanced Manufacturing Technologies for Vaccines against Influenza and Emerging Infectious Diseases, Department of Health and Human Services, Food and Drug Administration

Application Deadline: May 18, 2021

Center for Biologics Evaluation and Research (CBER) regulation helps to ensure an available supply of safe and effective biological products in the United States. CBER realizes the need for an efficient, agile, and flexible manufacturing sector that can reliably produce high quality biologics. To achieve this vision, CBER encourages the development and adoption of emerging technologies to modernize the manufacturing processes for complex biologic products (e.g., vaccines, and cell and gene therapies). These modernization efforts should aim to create more robust manufacturing and control process with fewer interruptions in production, less frequent product failures (before or after distribution), and greater assurance that the biologic products manufactured at any given time will provide the expected clinical performance.

CBER also recognizes that the implementation of emerging technologies for manufacturing high-quality complex biologics could present various challenges due to the limited knowledge and experience with a new technology. This program aims to address the knowledge and experience gaps identified for emerging manufacturing technologies and to support the adoption of such technologies in the biological product sector.

Project Objectives:

CBER seeks to support the application of novel technologies for advanced manufacturing of complex biologic products, and innovative analytical approaches to improve product manufacturing and quality through active research. One such technology is continuous manufacturing, defined as manufacturing using a continuous process, rather than a batch-process approach. This emerging technology has the potential to improve agility, flexibility, cost, and robustness in the manufacturing processes for complex

biologics. In general, CBER seeks to enhance development of innovative technologies with the potential to address product shortages, improve product quality, and accelerate the time to market for complex biologics such as vaccines against influenza and other emerging diseases.

The supported research will advance innovations in manufacturing by developing and making technologies accessible to industry in the near term, and by bridging the gaps between discoveries and the implementation by industry. Additionally, this research is intended to support advances in regulatory science that allow for development of science and risk-based guidelines to facilitate faster adoption of these innovative technologies. Some specific areas of research could include the following and the application should clearly describe the potential impacts of the proposed technology on the readiness for broad implementation in the biological product industry, control strategy, and/or regulatory evaluation:

- Development of cell lines capable of significantly improving recombinant influenza hemagglutinin protein yields ≥ 50% over current methodologies
- Development of improved bioreactor technologies for intensified biomanufacturing of high-quality recombinant protein vaccines
- Refinement of vaccine characterization technologies to facilitate more rapid production and lot release

Link to Additional Information: https://grants.nih.gov/grants/guide/rfa-files/RFA-FD-21-033.html

5. Fiscal Year (FY) 2021 Department of Defense Space University Research Initiative, Department of Defense, Air Force Office of Scientific Research

Application Deadline: June 16, 2021

This is a special Funding Opportunity Announcement (FOA) in support of the research objectives the Department of Defense (DoD) Space University Research Initiative (SURI), sponsored by the Air Force Office of Scientific Research (AFOSR) and the Air Force Research Laboratory (AFRL) Chief Technologist Office (hereafter collectively referred to as "DoD agencies"). DOD's SURI program is focused on directing basic research toward applications that meet US Space Force (USSF) needs and challenges. The program was initiated as a pilot to foster engagements between various DoD agencies and the academic community in a developing USSF University Consortium, with the goal of improving the transition of critical concepts from the academic sector into revolutionary new military technologies. Key to the program's success is the close management of the SURI projects by DoD agency program officers, and their role in providing research guidance and supporting transition of research products into DoD applications.

The SURI program is intended to support basic and applied research in Space-related science and engineering at U.S. institutions of higher education (hereafter referred to as "universities"), with potential transition to critical applications of DoD interest. As such, SURI differs from the Multidisciplinary University Research Initiative (MURI) that is funded by DoD basic research funds for basic research products. SURI is co-funded by applied research dollars, and thus expands the scope of work to include science and technology development. The SURI program supports multidisciplinary research efforts, ideally creating synergies to speed DoD-relevant research and development.

The anticipated period of performance is a three-year base period, with one two-year option to continue performance. As a result, the period of performance if all options to continue performance are exercised could be five (5) years. We anticipate that $1,000,000 per year in funding will be made available to fund at least two awards from the proposals received. For a given award, the awardee should plan on up to $5,000,000 base funding for the five-year duration if all options are exercised. Note that a given award may be supplemented if funds become available and the additional effort is within scope. In general, the total amount of funding and resources made available to fund a successful proposal may vary based on the quality of proposals received, and funds availability. There are two topics associated with this Broad Agency Announcement, "Space Logistics and Mobility" and "Space Domain Awareness," as detailed below.

Topic 1: Space Logistics and Mobility - Background: Logistics have always been an essential factor in any complex operation establishing coordination between systems, facilities, and supplies. For space, logistics has been quite limited to replacement of existing systems rather than maintaining functionality with the exception of manned platforms such as the International Space Station or the Hubble Telescope which required servicing via the shuttle program. Satellites however, are typically not subject to this treatment. Instead, systems are designed to survive long operational timelines well past their relevance to the current state of the art and engineered with safeguards designed in to minimize operational degradation. Still functioning systems are also retired due to requirements for station keeping/disposal and no standard method to refuel. Damaged systems are only fixed with software solutions, as possible, rather than corrected on orbit. Issues like failed deployments or debris-damaged components are assessed to establish operational alternatives.

Objective: The intent of this topic is to identify science and technology enablers for the space logistics and servicing paradigm. While immediate interest and transition opportunities relate to the challenge of robotic enabled refueling, the broader On-Orbit Servicing, Assembly, and Manufacturing (OSAM) community has many other areas of interest from various public/private entities. These areas of interest relate to functions enabled by robotics to include, but not limited to: assembly, refueling, repairing and repurposing. These activities can have implications on many aspects of current satellites and the way they are both designed and operated. Proposed approaches may consider how research could transition across multiple logistics functions.

Topic 2: Space Domain Awareness - Background: One of the most critical space related missions to ensure the safe operations in space is Space Domain Awareness (SDA). The traditional orbits monitored in SDA are largely limited to low-earth, medium-earth, and geosynchronous (GEO) orbits. Today, these orbits are monitored using both ground and space platforms to detect, track and characterize space objects. The data is primarily composed of imagery and light curves collected from optical and radar systems and requires extensive coordination of large data sets and complex processing algorithms.

Objective: The intent of this topic is to identify science and technology enablers for potential space domain awareness applications. Solutions are expected to focus on elements pertaining to sensors and measurement strategies, data fusion and autonomy. However, novel solutions that enable SDA outside of these are also welcome. Ideally, solutions will also have a path to implementation and incremental demonstration utilizing legacy systems or concepts that can be prototyped within the time frame of the solicitation. Innovative approaches that go beyond the current state of operations are highly desirable.

Link to Additional Information: Go to www.grants.gov and search for Funding Opportunity Number **FOA-AFRL-AFOSR-2021-0004**

6. Request for Proposal for Materials Science Center of Excellence, Department of Defense, OUSD R-E Basic Research Office

Application Deadline: April 30, 2021

NOTE: This is a Request for Proposal for a Materials Science Center of Excellence. Entities interested in applying for this opportunity must go DoD Funding Opportunity W911NF-19-S-0013 on Grants.gov and apply using the instructions and applications forms provided there. See the Related Opportunities link above.

The Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) seeks unclassified research proposals from Historically Black Colleges and Universities and **Minority-Serving Institutions** (HBCU/MI) under Funding Opportunity Announcement (FOA) W911NF-19-S-0013 to conduct research in the area of **Materials Science** at an established Center of Excellence (CoE). The Government will evaluate proposals through a scientific review process in accordance with evaluation criteria listed in the FOA. The HBCU or MI with the most technically acceptable proposal may be awarded a Cooperative Agreement with a performance period not to exceed five years. The Center led by the Principal Investigator (PI) will be expected to conduct collaborative research **within the proposing HBCU/MI and with one other institution of higher education (IHE)** and with involvement of scientists (Cooperative Agreement Managers) from the Army Research Laboratory (ARL).

The Government will evaluate proposals through a scientific review process in accordance with evaluation criteria listed in the FOA. One highly meritorious proposal may be awarded a Cooperative Agreement with a performance period of up to five years, supported at a level up to $1.5M per year. A sub award to the collaborating IHE partner is limited to no more than 40 percent of the annual budget.

DoD seeks to establish a Center of Excellence in Materials Science to perform research in the following areas:

- **Structures & Protection** – Structural materials for load bearing mechanical support and/or multifunctional applications. The design of materials, joining, and integration tools for damage tolerant, survivable, structurally efficient assets.
- **Propulsion & Extreme Environments** – Components with higher temperature and performance capabilities.
- **Sensors, Electronics and Photonics** – Processing science and characterization of materials destined for use in electronics, transparencies, and photonic applications. Focus areas include energy efficient electronics with 2D materials, printable, flexible electronics, neuromorphic and synaptic devices, 2D material-based quantum computing, and van der Waals solids for photonics.
- **Power & Energy** – Materials and material architectures for more efficient electrical power generation and utilization. Focus areas include integrated computational engineering of materials and devices, dielectric materials and films for pulsed power, thin film photovoltaics, batteries, and fuel cells.

- **Readiness** – Materials and processing technologies for nondestructive assessment technologies, repair methodologies, prognostics, and tribology are focus areas.
- **Individual Warfighter Protection** – New materials for protection against a wide range of battlefield threats, for augmenting human performance, materials for on-site power and water generation, and bioinspired materials.
- **Corrosion** – Technologies for corrosion control and prevention to reduce corrosion-related maintenance costs.
- **Manufacturing Technology for Affordability** – The materials, processing and fabrication techniques to significantly reduce manufacturing costs. This includes but is not limited to processing and fabrication of electronics, composites and metals.

Link to Additional Information: Go to www.grants.gov and search for Funding Opportunity Number **W911NF-19-S-0013**

7. Request for Proposal for Biotechnology Center of Excellence, Department of Defense, OUSD R-E Basic Research Office

Application Deadline: April 30, 2021

NOTE: This is a Request for Proposal for a Biotechnology Center of Excellence. Entities interested in applying for this opportunity must go DoD Funding Opportunity W911NF-19-S-0013 on Grants.gov and apply using the instructions and applications forms provided there. See the Related Opportunities link above.

The Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) seeks unclassified research proposals from Historically Black Colleges and Universities and **Minority-Serving Institutions** (HBCU/MI) under Funding Opportunity Announcement (FOA) W911NF-19-S-0013 to **conduct research in the area of Biotechnology at an established Center of Excellence (CoE)**. The Government will evaluate proposals through a scientific review process in accordance with evaluation criteria listed in the FOA. The HBCU or MI with the most technically acceptable proposal may be awarded a Cooperative Agreement with a performance period not to exceed five years. The Government will evaluate proposals through a scientific review process in accordance with evaluation criteria listed in the FOA. The HBCU or MI with the most technically acceptable proposal may be awarded a Cooperative Agreement with a performance period not to exceed five years. The Center led by the Principal Investigator (PI) will be expected to conduct collaborative research **within the proposing HBCU/MI and with one other institution of higher education (IHE)** and with involvement of scientists (Cooperative Agreement Managers) from the Army Research Laboratory (ARL). One highly meritorious proposal may be awarded a Cooperative Agreement with a performance period of up to five years, supported at a level up to $1.5M per year. A sub award to the collaborating IHE partner is limited to no more than 40 percent of the annual budget.

Biotechnology is defined as engineering of biological systems and processes to produce a wide range of technologies and products, as well as utilizing biological pathways and data to enable technological advances. DoD seeks to establish a Center of Excellence in Biotechnology to focus efforts in domains such as Materials and Systems, Military Medicine, Warfighter Performance, and Chemical-Biological Defense. Specific areas of interest include:

- Approaches for engineering new biological systems or re-designing existing ones for useful purposes
- Interfaces between the biological and physical world (abiotic)
- Human-machine interfaces
- Designing novel materials, sensors, or processes with biological systems
- Developing new tools and capabilities to understand, harness, and control biological systems, such as cells, tissues, organs, organisms, and complex communities, to both develop new products and functional systems, as well as to gain new insights into underlying mechanisms
- Developing and validating new theories and computational models that identify factors and principles underlying collective and interactive behaviors of biological organisms at all scales from individual cells to global ecosystems
- Developing technologies to leverage biological systems to produce critical and strategic organic and inorganic materials
- Developing new technologies and approaches that ensure biosafety and biosecurity
- Developing new technologies to treat, prevent, and predict the emergence and spread of infectious diseases
- Developing technologies to advance continuous or near-continuous monitoring of an organism's physiology
- Developing an understanding of mechanisms that organisms use to assess and interact with their environment.
- Developing tools and technologies to understand the underlying rules defining biomolecular and biomaterial structure/function properties in order to predict desired outcomes for novel materials.
- Developing tools and technologies for modeling of complex biological interactions, systems, and outputs using computation biology and AI analytics.

Link to Additional Information: Go to www.grants.gov and search for Funding Opportunity Number **W911NF-19-S-0013**

8. Integrated Computational and Data Infrastructure (ICDI) for Scientific Discovery, Department of Energy - Office of Science

Application Deadline: Letter of Intent (Required) - April 2, 2021; Full Application – May 14, 2021

The DOE SC program in Advanced Scientific Computing Research (ASCR) hereby announces its interest in funding research and development projects to create an advanced Integrated Computational and Data Infrastructure (ICDI) program. This FOA is composed of two topics.

- Topic A "Experimental/Computational/Computer Science collaborations" addresses the challenge of creating collaborative teams of scientists to accelerate science discoveries supported by the SC programs. Applications to this topic must be submitted by multi-investigator teams. Specific tasks include, but are not limited to:
    - Tools and services that support the Findable Accessible, Interoperable, Reusable (FAIR) data principles and support data use by disparate science communities.
    - AI/ML/DL methods that will accelerate the discovery of new correlations and aid science collaborations to operate more effectively.
    - Tools, algorithms, and services that advance digital twining methodologies by the sharing of machine data between experimental analysis and computational simulation, allow scientists to steer analysis or simulation results in real-time, or incorporate AI/ML/DL techniques allowing agents to act in concert with the scientist.
    - Workflows and services that advance peering partnerships by managing distributed computing infrastructures, increasing collaboration between team members, and ensuring that a wide range of computational and experimental resources can be used effectively for data collection, data analysis and simulation studies.
- Topic B: "Intelligent Distributed Infrastructure Simulation Capabilities" addresses the challenge of modeling, simulating, and validating the performance of geographically distributed science infrastructures. Both single and multiple investigator applications may be submitted. Specific tasks include, but are not limited to:
    - Individual tools and services that correlate data from log files, network trace data, and other sources to identify under-performing workflows.
    - Individual tools and services that capture unique measurement or monitoring data that can be correlated with other sources.
    - AI/ML/DL methods that will accelerate and significantly increase the size and speed of simulated topologies without lowering simulation fidelity.
    - Models and simulation services that can duplicate the physical infrastructure with sufficient fidelity to be a digital twin of that infrastructure.
    - Collaborative teams that integrate multiple tools or services into a larger complex infrastructure.

Awards under this FOA will develop new software workflows and tools to accelerate the scientific discovery process through the convergence of experimental/simulation data, computational/experimental facilities and a broad community of scientists to both generate high fidelity simulations and steer experiments. It will also develop the modeling and simulation capabilities needed to predict and debug workflow performance in distributed computational and data infrastructures. This work will leverage the SC-supported Labs Federated Identity Management activities to create a Federated Service environment. This will allow SC facilities to set and enforce access policies while scientists will use their accredited and validated institutional identity to accesses the appropriate resources.

The key challenge now is to move from today's computational/computer scientists' partnerships to deeply integrated collaborations that merge experimental scientists in with their computational/computer science peers. This must be done in an adaptive and intelligent manner to enable discoveries in one area to directly drive discoveries in the others. While nascent activities in this area have been going on for years, what is needed now is a coordinated approach where a common core set of adaptable and customizable services are developed, deployed, and continuously validated.

Link to Additional Information: Go to www.grants.gov and search for Funding Opportunity Number **DE-FOA-0002482**

9. Transfer of Graphene for Graphene-based Devices Grant Program, Department of Commerce, National Institute of Standards and Technology

Application Deadline: May 19, 2021

Graphene, due to its extraordinary electrical, photonic, thermal, and mechanical properties, is a game-changing material for diverse applications such as high-speed transistors, biosensors, photodetectors, and a standard for both resistance and optical absorption coefficient. With the advancement of epitaxial growth techniques, very high-quality graphene can be obtained on silicon carbide (SiC) substrate. Metrological devices such as the Quantum Hall resistance standard with high performance were achieved by fabricating epitaxial graphene directly on SiC substrate. However, many of the applications require transferring graphene to different substrates, other than SiC. The same is true for graphene grown via vapor transport onto copper or other materials. NIST has undertaken a major research effort in graphene for nearly a decade that spans cutting edge research, SI traceable standards, and international documentary standards development. NIST has a long history of working on graphene research collaboratively with other government agencies, academia, and industry.

The NIST Transfer of Graphene for Graphene-based Devices Grant Program is seeking applications from eligible applicants for research activities to determine effective and efficient methods of transferring graphene grown on SiC (secondarily copper or other chemical vapor deposition (CVD) substrates) to target substrates that are required in many graphene-based devices, especially for high-end applications. The characterization of graphene on said target substrates is necessary and will be used to determine the quality of the resulting graphene. Characterization techniques may include but are not limited to optical microscopy, confocal laser scanning microscopy, SEM, TEM, AFM, and Raman spectroscopy. Quantifying and minimizing defects induced during the transfer is critical to device performance. The electronic, photonic, and other properties of transferred graphene are also of interest. **The program's primary goal is for the recipient to develop and publish a methodology for transferring large-area and high-quality graphene with high reproducibility and scalability to enable commercialization of graphene devices**.

Link to Additional Information: Go to www.grants.gov and search for Funding Opportunity Number **2021-NIST-GBD-01**

10. Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences (LEAPS-MPS), National Science Foundation

Application Deadline: June 14, 2021

With emphasis in helping to launch the careers of pre-tenure faculty in Mathematical and Physical Sciences (MPS) fields at minority-serving institutions (MSIs), predominantly undergraduate institutions (PUIs), and Carnegie Research 2 (R2) universities, and with the goal of achieving excellence through diversity, the Directorate for Mathematical and Physical Sciences hereby announces a call for Launching Early-Career Academic Pathways (LEAPS-MPS) proposals. This LEAPS-MPS call also aims to broaden participation to include members from groups underrepresented in the Mathematical and Physical Sciences, including Blacks and African Americans, Hispanics, Native Americans, Alaska Natives, and Native Hawaiians, and other Pacific Islanders. These grants are intended to support MPS principal investigators in initiating their research programs early in their careers, particularly at the aforementioned institutions. By providing this funding opportunity, MPS intends to help initiate viable independent research programs for researchers attempting to launch their research careers such that LEAPS-MPS awards are followed by competitive CAREER or individual-investigator grant submissions that build upon the research launched through this mechanism. This LEAPS-MPS solicitation welcomes proposals from principal investigators who share NSF's commitment to diversity.

LEAPS-MPS awards are for beginning investigators to undertake activities, such as acquisition of preliminary data or development of collaborations, that will lead to formulation of competitive grant applications to NSF at the conclusion of the LEAPS-MPS award. Another goal of the LEAPS-MPS award is to broaden the participation of and to increase opportunities for all scientists including those from groups underrepresented in MPS fields, in order to encourage individuals to become actively and competitively engaged in research as independent investigators. LEAPS support aims to the launch the research career of these early-career PIs and, in this way, make MPS programs more inclusive.

Awards are for 24 months and are up to $250,000 total costs (direct plus indirect). Principal Investigators must be U.S. citizens or lawfully admitted U.S. permanent residents at the time of proposal submission; visa-holders are not eligible. Proposals in response to this solicitation must be submitted to the Office of Multidisciplinary Activities (OMA) in the Directorate of Mathematical and Physical Sciences (MPS); they will subsequently be transferred to and managed by an appropriate MPS Division. Research proposed in this program must be within the purview of the Directorate for Mathematical and Physical Sciences, which includes the Divisions of **Astronomical Sciences, Chemistry, Materials Research, Mathematical Sciences, and Physics**.

Link to Additional Information: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf21570

11. Entanglement Management and Control in Transparent Optical Quantum Networks, Department of Energy - Office of Science

Application Deadline: Letter of Intent – April 5, 2021; Full Proposal - May 17, 2021

The DOE SC program in Advanced Scientific Computing Research (ASCR) hereby announces its interest in entanglement management and control in transparent optical quantum communications networks. Recently, tremendous progress has been made in understanding how quantum information with its complex characterization can be geographically distributed to achieve extraordinary capabilities that are impossible using classical optical telecommunication networks. This process involves quantum entanglement, a complex and valuable but perishable resource in which the transmitted quantum information is encoded. Although the transmission of an entanglement state over a dedicated single-hop channel has been successfully demonstrated, the distribution of a large number (several thousand) of entangled states in multi-hop and multi-user mesh-topology quantum networks remains an open challenge.

The focus of this FOA is on entanglement traffic engineering - the scalable management and control of a large pool of quantum entangled states carried over multi-hop multi-user optical quantum networks. This announcement is based on the vision of universal transparent quantum networks described in the quantum networks for science workshop report [1] and on an earlier SC program announcement to the national laboratories [8] focusing on the development of basic network components such as quantum transductions, quantum frequency converters, quantum repeaters, and generic quantum networks nodes hosting Quantum Information Science (QIS) applications. The ultimate aim is to develop quantum network capabilities to support the vision articulated in the quantum internet blueprint workshop report [9]. While a universal transparent optical quantum network should be able to allow users to distribute different entangled states (including squeezed states), the interest in this announcement is on bipartite hybrid Discrete Variable/Continuous Variable (DV/CV) [2,3,4,6] entanglement.

Applications that focus on the theoretical foundation of entanglement engineering in quantum networks described above are welcomed; however, priority will be given to applications that emphasize both theoretical and - potential uses of their research results in a quantum network testbed. This FOA seeks to advance understanding of how entanglement operates in quantum networks: The engineering challenges of how to optimize a quantum network will build on this foundation of basic research.

Quantum networks, especially continental-scale quantum networks are still in infancy. Critical components such as quantum repeaters, quantum frequency converters, quantum buffers, and quantum routers are currently not available. Applicants should therefore focus on entanglement traffic engineering for multi-hop quantum networks with no repeaters or routers, specifically hybrid (DV/CV) Quantum Local Area Networks (Q-LANs). The proposed Q-LAN should have the following minimum characteristics besides supporting hybrid (DV/CV) quantum encoding:

1. Mesh topology networks with a minimum of three quantum network nodes - where nodes are defined as network locations where QIS applications [8] and photonic quantum network devices are hosted. Nodes are also sources or destinations of entangled states;
2. Multi-users – the network should be able to handle multiple users capable of randomly generating entangled states that are groomed and carried over shared channels, and a user may generate several quantum states;
3. Entangled states must traverse at least two quantum links or hops between source-destination paths.
4. The quantum links of interest are optical fiber systems that operate on ITU optical grids in C and L bands used for standard optical telecommunication systems. These links must be capable of carrying classical and quantum network information.

Link to Additional Information: Go to www.grants.gov and search for Funding Opportunity Number **DE-FOA-0002476**

12. University Leadership Initiative (ULI), National Aeronautics and Space Administration

Application Deadline: Step A Proposals – June 22, 2021; Step B Proposals – By invitation only

The University Leadership Initiative (ULI) Program provides the opportunity for university teams to exercise technical and organizational leadership in proposing unique technical challenges in aeronautics, defining multi-disciplinary solutions, establishing peer review mechanisms, and applying innovative teaming strategies to strengthen the research impact. ULI's strategic goals are:

- Assist in achieving aviation outcomes defined in the ARMD Strategic Implementation Plan ("Strategic Plan") through NASA-complementary research;
- Transition research results to an appropriate range of stakeholders that leads to a continuation of the research. Transition can occur in several ways, including the following: o Creates a new product line in U.S. industry or a new ARMD project, o

Whole ULI concept is transitioned to U.S. industry/ARMD project, o Part of the ULI concept is transitioned to U.S. industry/ARMD project, o ULI findings impact direction of U.S. industry/ARMD.

- Provide broad opportunities for students at different levels, including undergraduate and graduate, to participate in aeronautics research;
- Promote greater diversity in aeronautics through increased participation of minority1serving institutions and underrepresented university faculties in ULI activities. ULI provides the opportunity for university teams to exercise technical and organizational leadership in proposing unique technical challenges, defining interdisciplinary solutions, establishing peer review mechanisms, and applying innovative teaming strategies to strengthen the research impact.

By addressing the most complex challenges associated with ARMD strategic thrusts, universities will accelerate progress toward achievement of high impact outcomes while leveraging their capability to bring together the best and brightest minds across many disciplines. In order to transition their research, Principal Investigators (PIs) are expected to actively explore transition opportunities and pursue follow-on funding from stakeholders and industrial partners during the award. Research proposals are sought in seven ULI topic areas in Appendix D.4.

- Topic 1: Safe, Efficient Growth in Global Operations (Strategic Thrust 1)
- Topic 2: Innovation in Commercial Supersonic Aircraft (Strategic Thrust 2)
- Topic 3: Ultra-Efficient Subsonic Transports (Strategic Thrust 3)
- Topic 4: Safe, Quiet, and Affordable Vertical Lift Air Vehicles (Strategic Thrust 4)
- Topic 5: In-Time System-Wide Safety Assurance (Strategic Thrust 5)
- Topic 6: Assured Autonomy for Aviation Transformation (Strategic Thrust 6)
- Topic 7: Zero Emission Aviation

This NRA will utilize a two-step proposal submission and evaluation process. The initial step is a short mandatory Step-A proposal due June 22, 2021. Those offerors submitting the most highly rated Step-A proposals will be invited to submit a Step-B proposal. All proposals must be submitted electronically through NSPIRES at https://nspires.nasaprs.com.

An Applicant's Workshop will be held on Thursday April 15, 2021; 1:00-3:00 p.m. ET (https://uli.arc.nasa.gov/applicants-workshops/workshop5).

Link to Additional Information: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BBC9FD42F-F272-6467-307A-EBA599923EC0%7D&path=&method=init

13. Developing Digital Therapeutics for Substance Use Disorders, Department of Health and Human Services, National Institutes of Health

Application Deadlines: Sept 8, 2021; Jan 10, 2022; Sept 8, 2022; Jan 10, 2023; Sept 8, 2023; & Jan 10, 2024

The purpose of this Funding Opportunity Announcement (FOA) is to accelerate the development of Digital Therapeutics (DTx) to treat Substance Use Disorders (SUDs). Advances in technology offer unprecedented opportunities to develop clinical-grade mobile, web, or other software-based platforms designed to deliver treatments that are safe and effective for SUD. FDA authorization of DTx can play an important role in increasing the availability of treatments to patients with SUD, although there are other pathways for dissemination of this class of intervention. The primary objective of this FOA is to move DTx to their next step in the development process, with the ultimate goal of generating new, FDA authorized, disseminated treatments for SUDs. Applications may focus on the pre-clinical and/or clinical development and testing of new DTx or existing DTx developed for other indications.

The goal is to support research into the development and testing of DTx for stand-alone treatments or DTx integrated with FDA-approved SUD treatments. Stand-alone DTx treatments may, for example, deliver behavioral interventions that are currently accessed via face-to-face interactions with a therapist. The treatment may be completely delivered by the DTx, or it may include reduced numbers of face-to-face interactions with a therapist. However, it is intended that no other intervention is included in a stand-alone treatment. Approaches integrated with FDA-approved SUD treatments would support and enhance the effect of the treatments. Indications targeted by the interventions could include: prevention of the initiation of SUDs, increasing medication adherence, enhancing treatment retention, treatment of withdrawal, initiation of abstinence, or reduction of relapse.

Investigators are strongly encouraged to reach out to the appropriate FDA Center for Devices and Radiological Health (CDRH) office via the Pre-Submission process to discuss the proposed development pathway and clinical validation data requirements. Guidance on this process can be found here: Q Submission Process. Questions for discussion in a Pre-Submission could include: whether a DTx would meet the definition of a medical device and require FDA oversight; the most appropriate regulatory pathway for a DTx if it

does meet the definition of a medical device; whether a clinical trial investigating the safety and effectiveness of an investigational DTx would represent a significant risk study and require prior Investigational Device Exemption (IDE) approval. Additional discussions can include clinical study design considerations (including feedback on the proposed patient population, study endpoints and assessments, statistical analysis plan, study comparator, and others) to support the safety and effectiveness of the DTx for a particular use indication.

Sham comparators or validated active comparators should be included when appropriate. If applicable, investigators should design studies to evaluate potential sex/gender differences. Methods to evaluate subjects' compliance with the study treatments should be included when possible. Monitoring adherence to the treatment would be especially appropriate for DTx that are integrated with FDA-approved SUD interventions.

Applicants should consult with NIDA staff when developing plans for an application (see Agency Contacts, Section VII). This early contact will provide an opportunity to clarify NIDA policies and guidelines, identify whether the proposed project is consistent with NIDA program priorities, and discuss how to develop an appropriate project timeline, which is subject to peer review.

Link to Additional Information: http://grants.nih.gov/grants/guide/pa-files/PAR-21-183.html

14. Federal-State Marketing Improvement Program (FSMIP), Department of Agriculture, Agricultural Marketing Service

Application Deadline: May 24, 2021

To explore new market opportunities for U.S. food and agricultural products, and encourage research and innovation aimed at improving the efficiency and performance of the U.S. agricultural marketing system, FSMIP funds a wide range of applied research projects that address barriers, challenges, and opportunities in marketing, transportation, and distribution of U.S. food and agricultural products domestically and internationally. The Agricultural Marketing Service (AMS) encourages applications intended to serve, smaller farms and ranches, new and beginning farmers and ranchers, socially disadvantaged producers, veteran producers, and/or underserved communities. For projects intending to serve these audiences, applicants should engage and involve those beneficiaries when developing projects and applications.

Applicants must align their proposal to one of the four project types:

- Agricultural Product Distribution (handling, storage, processing, transportation, and distribution)
- Cooperative Development (cooperation among Federal and state agencies, producers, industry organizations, and others in the development and effectuation of research and marketing programs to improve the distribution processes)
- Economic Research to Clarify Marketing Barriers and Opportunities, including regulatory compliance costs
- Agricultural Product Development AMS acknowledges that projects may align with multiple project types.

If a project aligns with more than one project type, the applicant must assign one primary project type and may have multiple secondary project types. Proposals must have a strong marketing focus, must involve research, and the primary beneficiaries must be agricultural producers and agribusinesses. Additionally, they may address topics dealing with any level of the marketing chain including direct, wholesale, and retail as well as issues of importance at the State, multi-State, or national level. Training or education related proposals must include a research component that tests its effects on the marketing goals. FSMIP will consider unique smaller-scale proposals that may serve as pilot projects or case studies as models for others. Such proposals must include an objective to analyze opportunities and formulate recommendations regarding how the project could be scaled up or expanded to other regions.

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=332312

15. A Cooperative Agreement for Climate Adaptation and Mitigation, Department of Commerce

Application Deadline: May 24, 2021

The NOAA Climate Adaptation and Mitigation Program (CAMP) supports research, programs, projects and other activities related to NOAA's mission, primarily through collaborations among scientists and professionals in areas of mutual interest across the full spectrum of NOAA climate sciences. This cooperative agreement will focus on the following four priority areas:

1) Improved scientific understanding of the changing climate system and its impacts;
2) Scientific assessments of current and future states of the climate system that identify potential impacts and inform science, service, and stewardship decisions;

3) Mitigation and adaptation efforts supported by sustained, reliable, and timely climate services;
4) A climate-literate public that understands its vulnerabilities to a changing climate and makes informed decisions.

Eligible applicants must be academic institutions of higher learning which offer doctoral degrees in NOAA-related sciences; consortia of academic institutions of higher learning which offer doctoral degrees in NOAA-related sciences; or non-profit research institutions. Multi-institution applications will not be accepted.

The total NOAA funding amount available for the CAMP is anticipated to be approximately $10,000,000 per year or a total of $50,000,000 for the five-year period. There will be appropriation of some funds at the start of the award. NOAA anticipates making one award for the five-year period and anticipates providing funds one or more times each year for five years. NOAA has no obligation to provide additional funding in connection with that award in subsequent years. Funding for each subsequent year of a multi-year proposal is at the discretion of NOAA and is subject to the availability of funds.

NOAA, OAR, and the Climate Program Office (CPO) encourage applicants and awardees to support the principles of diversity and inclusion when writing their proposals and performing their work. Diversity is defined as a collection of individual attributes that together help organizations achieve objectives. Inclusion is defined as a culture that connects each employee to the organization. Promoting diversity and inclusion improves creativity, productivity, and the vitality of the climate research community in which NOAA engages.

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=332337

16. FY22 - Multidisciplinary Research Program of the University Research Initiative

Application Deadline: September 27, 2021

The Department of Defense (DoD) Multidisciplinary University Research Initiative (MURI), one element of the University Research Initiative (URI), is sponsored by the DoD research offices. Those offices include the Office of Naval Research (ONR), the Army Research Office (ARO), and the Air Force Office of Scientific Research (AFOSR) (hereafter collectively referred to as "DoD agencies" or “DoD”).

- ONR Announcement # N00014-21-S-F004
- ARO Announcement # W911NF-21-S-0008
- AFOSR Announcement # FOA-AFRL-AFOSR-2021-0003

DoD's MURI program addresses high-risk basic research and attempts to understand or achieve something that has never been done before. The program was initiated over 25 years ago and it has regularly produced significant scientific breakthroughs with far reaching consequences to the fields of science, economic growth, and revolutionary new military technologies. Key to the program’s success is the close management of the MURI projects by Service program officers and their active role in providing research guidance. Basic research is systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. It includes all scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs. It is farsighted high payoff research that provides the basis for technological progress (DoD 7000.14-R, vol. 2B, chap. 5, para. 050105. A.)

The DoD agencies involved in this program reserve the right to select for award all, some or none of the proposals submitted in response to this announcement. The DoD agencies provide no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this FOA will not be returned. It is the policy of the DoD agencies to treat all proposals as competition sensitive information and to disclose their contents only for the purposes of evaluation. Awards will take the form of grants. FOR ARO SUBMISSIONS ONLY, awards will take the form of grants and/or cooperative agreements. Any assistance instrument awarded under this announcement will be governed by the award terms and conditions that conform to DoD’s implementation of the Office of Management and Budget (OMB) circulars applicable to financial assistance. Terms and conditions will reflect DoD implementation of OMB guidance in 2 CFR Part 200, “Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.”

The FY 2022 MURI competition is for the topics listed below.

AFOSR:

- Topic 1: Social Network-Transcendent Behavioral Dynamics
- Topic 2: Microelectronic Test Science Exploiting Latent Energy and Electromagnetic Radiation

- Topic 3: Cavity Molecular Polaritons
- Topic 4: Effects of Radiation Damage on Performance of Wide-Bandgap Electronics
- Topic 5: Understanding Neural Systems Integration for Competent Autonomy in Decision and Control
- Topic 6: Nonlinear Optical Material Design with Extreme Interband Nonlinearities
- Topic 7: Synthetic Quantum Matter
- Topic 8: Composability of Synthetic Biological Circuits

ARO:

- Topic 9: Bio-architected Responsive Materials with 3D Nanoscale Order
- Topic 10: Topological Seeds of Complex Response in Materials
- Topic 11: Connectivity and Transport in Disordered Hyperuniform Networks
- Topic 12: Irregular Metamaterial Networks
- Topic 13: Uncovering the Underlying Neurobiological Mechanisms of Cognitive Fatigue
- Topic 14: Gut-Neuronal Signaling Through Polymeric Mucin via Chemical Probes and Imaging
- Topic 15: ELECTROBIOLOGY: Electronic Control of Biological Communication

ONR:

- Topic 16: Novel Routes to Majorana Qubits for Topologically-Protected Quantum Information
- Topic 17: Molecular Doping of Organic Electronic Materials
- Topic 18: Learning from Hearing
- Topic 19: Hydrodynamics of Fish Schooling
- Topic 20: Self-learning for Real-world Perception
- Topic 21: Fundamental Non-equilibrium Processes in Weakly Ionized Hypersonic Flows
- Topic 22: Ab Initio Understanding of Detonation Based Combustion in Multiphase Mixtures
- Topic 23: Bioinspired Design of Energy-Self Sufficient Multi-functional Soft Material Systems
- Topic 24: Systems-Level Foundations for Agile, Dynamic, and Ad Hoc Human Autonomy Teams
- Topic 25: Environmental DNA-based Monitoring of the Marine Environment (ED-MON)

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=332285

17. Engineering Research Initiation, National Science Foundation

Application Deadline: June 18, 2021

The National Science Foundation (NSF) Directorate for Engineering (ENG) seeks to build engineering research capacity across the nation by investing in new academic investigators who have yet to receive research funding from Federal Agencies. The Engineering Research Initiation (ERI) program aims to support new investigators as they initiate their research programs and advance in their careers as researchers, educators, and innovators. This funding opportunity also aims to broaden the base of investigators involved in engineering research and therefore is limited to investigators that are not affiliated with "very high research activity" R1 institutions (according to the Carnegie Classification https://carnegieclassifications.iu.edu/).

NSF investments in engineering research and education are critical building blocks for the nation's future economic growth and prosperity. Engineering breakthroughs have addressed national challenges, enriched our understanding of natural systems, fostered new technologies, fortified the nation's infrastructure, and introduced the exciting possibilities of engineering to the next generation. The Directorate for Engineering (ENG) supports the development of a diverse engineering workforce versed in the forefronts of engineering research and promotes the success of new academic investigators in their careers as researchers, educators, and innovators. The goal of the ERI program is to broaden the base of scientists and engineers in academia who dedicate their careers to advancing engineering research and education in societally important fields relevant to ENG.

The ERI program is part of the Directorate for Engineering capacity-building strategy to direct its investments in engineering research across the nation. This solicitation provides support for investigators who have yet to receive research funding from Federal Agencies to initiate their engineering research programs and to be in a more competitive position for future proposal submissions. Eligibility to apply to this program is limited to non-R1 Institutions of Higher Education (IHEs) accredited in, and having a campus located in the US. NSF encourages submission by new investigators in engineering fields from non-PhD awarding institutions, including community colleges.

NSF strongly encourages participation in this ERI program by PIs from all underrepresented groups in engineering, including gender identity and expression, race and ethnicity (Blacks and African Americans, Hispanic Americans, American Indians, Alaska Natives,

Native Hawaiians, and Native Pacific Islanders), disability, LGBTQ+, first generation college and socio-economic status. New investigators who are at Minority-Serving Institutions are especially encouraged to apply.

Proposers may submit proposals only in engineering research areas supported by programs within the Divisions of the Directorate for Engineering. The list of ERI-eligible ENG programs is provided in Section V.A, Proposal Preparation and Submission Instructions.

ENG Unit of Consideration: Select at least one specific program from the drop-down list in FastLane as the NSF program(s) to consider the proposal. Research.gov users: Select at least one specific program in Step 2 of the Prepare New Proposal Wizard (Where to Apply). Grants.gov users should refer to Section VI.1.2. of the NSF Grants.gov Application Guide for specific instructions on how to designate the NSF Unit of Consideration. Proposers to the RFE and BPE programs should select cognizant PO Dana Denick under ECCS Division name. For assistance in determining which program(s) to choose, refer to the list of ERI-eligible ENG Programs below:

CBET

- Catalysis
- Electrochemical Systems
- Interfacial Engineering
- Process Systems, Reaction Engineering, and Molecular Thermodynamics
- Biophotonics
- Biosensing
- Cellular and Biochemical Engineering
- Disability and Rehabilitation Engineering
- Engineering of Biomedical Systems
- Environmental Engineering
- Environmental Sustainability
- Nanoscale Interactions
- Combustion and Fire Systems
- Fluid Dynamics
- Particulate and Multiphase Processes
- Thermal Transport Processes

CMMI

- Advanced Manufacturing (AM)
- Biomechanics and Mechanobiology (BMMB)
- Civil Infrastructure Systems (CIS)
- Dynamics, Control and Systems Diagnostics (DCSD)
- Engineering Design and System Engineering (EDSE)
- Foundational Research in Robotics (Robotics)
- Humans, Disasters, and the Built Environment (HDBE)
- Mechanics of Materials and Structures (MOMS)
- Mind, Machine and Motor Nexus (M3X)
- Operations Engineering (OE)

ECCS

- Electronics, Photonics and Magnetic Devices (EPMD)
- Communications, Circuits, and Sensing-Systems (CCSS)
- Energy, Power, Control, and Networks (EPCN)

EEC

- Broadening Participation in Engineering (BPE)
- Research in the Formation of Engineers (RFE)

IIP

- Partnerships for Innovation (PFI)

Link to Additional Information: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf21574

18. Humanities Collections and Reference Resources, National Endowment for the Humanities

Application Deadline: July 15, 2021

The National Endowment for the Humanities (NEH) Division of Preservation and Access is accepting applications for the Humanities Collections and Reference Resources program. The Humanities Collections and Reference Resources program supports projects that provide an essential underpinning for scholarship, education, and public programming in the humanities. Thousands of libraries, archives, museums, and historical organizations across the country maintain important collections of books and manuscripts, photographs, sound recordings and moving images, archaeological and ethnographic artifacts, art and material culture, and digital objects. This program strengthens efforts to extend the life of such materials and make their intellectual content widely accessible, often through the use of digital technology. Awards are also made to create various reference resources that facilitate use of cultural materials, from works that provide basic information quickly to tools that synthesize and codify knowledge of a subject for in-depth investigation.

Proposed projects may address the holdings or activities of a single institution or may involve collaboration between institutions. However, even in the case of single-institution projects, working with specialists in other offices or departments or colleagues in other institutions often helps ensure that proposed activities are achievable and will have maximum impact for the humanities. Collaboration can be crucial in providing the appropriate mix of humanities content and methodological expertise and can help broaden the scope of, and audiences for, proposed collections or reference resources. In all cases, projects should be designed to facilitate sharing, exchange, and interoperability of humanities information and products.

The HCRR program includes two funding categories: Foundations and Implementation.

Foundations awards support planning, assessment, and pilot activities that incorporate cross-disciplinary expertise in order to help in the formative stages of efforts to preserve and create access to humanities collections or to produce reference resources. Drawing upon the cooperation of humanities scholars and technical specialists, these projects might encompass efforts to prepare for establishing intellectual control of collections, to solidify collaborative frameworks and strategic plans for complex digital reference resources, or to produce preliminary versions of online collections or resources. The variety of experts may include humanities scholars, archivists, curators, librarians, preservation specialists, and other information professionals, as pertinent to your goals. Although the most important consideration is to assemble a qualified group that is appropriate to the project, reviewers tend to look favorably on teams that include experts from both within and beyond your institution.

Implementation Applications may be submitted for projects that address one or more of the following humanities activities:

- arranging and describing archival and manuscript collections;
- cataloging collections of printed works, photographs, recorded sound, moving images, art, and material culture;
- providing conservation treatment for collections, leading to enhanced access;
- digitizing collections;
- preserving and improving access to born-digital sources, including updating existing digital resources;
- developing databases, virtual collections, other digital resources, or project-specific tools to codify information on a subject or to provide integrated access to selected humanities materials; creating encyclopedias;
- preparing linguistic resources, such as historical and etymological dictionaries, corpora, and reference grammars (separate funding is available for endangered language projects in partnership with the National Science Foundation); and
- producing resources for spatial analysis and representation of humanities data, such as atlases and geographic information systems (GIS).

Link to Additional Information: https://www.neh.gov/grants/preservation/humanities-collections-and-reference-resources

19. Office of Postsecondary Education (OPE): Child Care Access Means Parents in School Program Assistance Listing Number 84.335A, Department of Education

Application Deadline: June 1, 2021

The CCAMPIS Program supports the participation of low-income parents in postsecondary education through the provision of campus-based child care services. Grant funds under this section shall be used by an institution of higher education to support or establish a campus-based child care program primarily serving the needs of low-income students enrolled at the institution of higher education. Grant funds under this section may be used to provide before and after school services to the extent necessary to enable low-income students enrolled at the institution of higher education to pursue postsecondary education. In the FY 2021 competition, the program has two absolute priorities and three invitational priorities.

Absolute Priority 1 - Leverage significant local or institutional resources, including in-kind contributions, to support the activities assisted under this section.

Absolute Priority 2 - Utilize a sliding fee scale for child care services provided in order to support a high number of low-income parents pursuing postsecondary education at the institution.

Invitational Priority 1 Supporting Students Who are Single Parents - Projects that propose to serve children of student-parents residing in a single parent home. An applicant should describe in its application how it will provide resources with institutional funds, in addition to child care assistance provided by CCAMPIS funds, that will enhance the student-parents' educational, personal, and financial growth.

Invitational Priority 2 Addressing Child Care Shortages Due to COVID - Projects that propose to increase the number of licensed, quality child care centers in areas most impacted by the Novel Coronavirus where under-resourced community colleges are located, by, for example, utilizing unused classrooms on campus, working with community partners to create space in neighboring buildings, and hiring and training child care staff.

Invitational Priority 3 Providing Wrap-Around Services for Low-Income Parents in Postsecondary Education - Projects that propose to develop high-impact community engagement strategies and partner with community organizations in order to leverage institutional and community resources to provide wrap-around services (such as public benefits and additional financial aid to cover textbook costs, transportation costs, mental health services, faculty mentoring, tutoring, peer support groups, and emergency grants) that meet the whole need of low-income parents in postsecondary education.

Link to Additional Information: Office of Postsecondary Education (OPE): Child Care Access Means Parents in School Program Assistance Listing Number 84.335A; Notice Inviting Applications for New Awards for Fiscal Year (FY) 2021


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