

# NJIT Research Newsletter

Issue: ORN-2019-12

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**NJIT Research Newsletter** includes recent awards, and announcements of research related seminars, webinars, national and federal research news related to research funding, and **Grant Opportunity Alerts**. The Newsletter is posted on the NJIT Research Website <http://www.njit.edu/research/>.

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## Special Announcements

### 2019 NJIT President's Forum and Faculty Research Showcase

April 2, 2019; Ballroom A and B, Campus Center

We are pleased to introduce new faculty members and recipients of 2018 Faculty Seed Grants at the 2019 President's Forum and Faculty Research Showcase to be held on April 2, 2019. The Keynote Speaker is Dr. Chenzhong Li, Program Director Biosensing, Chemical, Bioengineering, Environmental and Transport Systems (CBET) Division at the National Science Foundation. The showcase will feature new faculty presentations starting at 12.15 PM in Ballroom A, Campus Center. After the oral session, the electronic poster and networking session will include electronic poster presentations by new faculty, and faculty seed grant recipients. Each presenter in the poster session will have a table with a laptop and LCD HD monitor displaying the research work.

All faculty, staff and students are invited to attend to learn and discuss ongoing research projects at NJIT for future collaborations.

#### Agenda

- 10.00 AM - 10.15 AM: Welcome Remarks  
Joel Bloom, President  
Vince DeCaprio, Vice Chair, BOT  
Fadi Deek, Provost and Senior Executive VP
- 10.15 AM - 10.20 AM: Speaker Introduction  
Atam Dhawan, Senior Vice Provost for Research

- 10.20 AM - 11.30 AM: President's Forum: Keynote Lecture: NSF Perspectives: Challenge and Opportunity in Bioinstrumentation Research  
Dr. Chenzhong Li, Program Director, Biosensing Program, CBET, NSF
- 11.30 AM - 12.15 PM: Lunch and Networking
- 12.15 PM - 2.00 PM: New Faculty Presentations
- 2.00 PM - 3.00 PM: Poster Presentations and Networking Session:  
New Faculty and Faculty Seed Grant Recipients

**Speaker's Bio:** Prof. Chenzhong Li is the Worlds Ahead professor of Biomedical Engineering, Chemistry and Immunology, the director of Nanobioengineering/Bioelectronics Lab at Florida International University. Currently he is also the Program Director of Biosensing program at National Science Foundation. Dr. Li is an expert in bioinstrumentation and bioelectronics, specifically in the development of biomedical devices for both diagnostic and therapeutic, which could also have cross-applications for environmental, food safety monitoring, agriculture, and homeland security. The impact of Dr. Li's research has been documented in 10 granted patents, about 140 peer-reviewed journal papers and 10 books and book chapters. Dr. Li was the Co-Principal Investigator of two newly funded NSF Engineering Research Centers (ERCs)-PATHUP and NERC-CELLMET, with focus on developing technologies for smart health diagnosis system and artificial heart tissues.

In recognition of his work, Dr. Li has received several awards and honors including the Kauffman Entrepreneurship Professor Award in 2009 and 2011, 2014 JSPS (Japan) Professor Fellowship Award, 2014 FIU Excellent Faculty Award in Research, 2016 Pioneer in Technology Development Award by the Society of Braining Mapping, 2016 the Finalist for FIU President's Council Worlds Ahead Award, and 2016 Minority-Serving Institution Faculty Award in Cancer Research, by American Association for Cancer Research (AACR). He is the fellow of the American Institute for Medical and Biological Engineering (AIMBE) and the Associate Editor of Biosensors and Bioelectronics and the Editor in Chief of the journal of Critical Review of Biomedical engineering.

**Keynote Talk:** NSF Perspectives: Challenge and Opportunity in Bioinstrumentation Research

**Speaker:** Dr. Chenzhong Li, Director, Biosensing Program, CBET, National Science Foundation; Professor, Nanobioengineering/Bioelectronics Lab, Department of Biomedical Engineering, Florida International University.

**Abstract:** Research funding, as is true of many opportunities, undergoes shifts. As funding levels change, priorities are altered, and application numbers vary, applicants should employ savvy strategies when seeking support. In this presentation, I will present my perspective of developing and sustaining collaborative research projects with particular emphasis on the research in the field of Biomedical Engineering and Bioinstrumentation such as biosensors. The presentation is based on my 25 years experiences gained during my own research, my service as a program director to the NSF Biosensing program and as an editor and reviewer of several flagship journals in the field of bioinstrumentation.

While the emphasis is on the funding opportunity of NSF Biosensing program, which supports fundamental engineering research on devices and methods for measurement and quantification of biological analytes, in keeping with the main aim of this talk of providing a perspective on sustainable project development, other research opportunities within the Chemical, Bioengineering, Environmental and Transport Systems (CBET) Division's "Bio clusters" within the Engineering Directorate of the National Science Foundation (NSF) will be provided. In addition, information about NSF crosscutting initiatives and training grants such as NSF Career Awards, NSF Engineering Research Center (ERC) and NSF Research Traineeship (NRT) will also be discussed.

This President's forum is a featured event in the Albert Dorman Honors College Colloquium Series and is made possible in part by the generous support of the DeCaprio Family.

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## **Call For Proposals**

### **NJIT Faculty Seed Grant Awards – FY2019-20**

Proposal Submission Deadline to College/School Dean: April 10, 2019

Project Funding Period: July 1, 2019 – June 30, 2020

#### **Purpose:**

NJIT "2020 Vision" strategic plan targets on substantial increase in academic research and external funding with faculty and student professional development. The purpose of the NJIT Faculty Seed Grant (FSG) initiative is to promote academic research in the core and interdisciplinary areas by providing seed funding to obtain preliminary results or establish hypotheses for developing future grant proposals for submission to external funding agencies. The FSG initiative specifically seeks seed funding proposals from faculty to launch new initiatives in core and interdisciplinary emerging areas aligned with NJIT strategic tactics to develop critical research mass.

#### **Eligibility and Type of Awards:**

NJIT full-time faculty with specific research initiative to enhance the critical mass in key and emerging areas may apply to FSG program for internal funding with a budget of \$7500 per project over the project period. Multidisciplinary collaborative projects with 2 or more PIs are strongly encouraged and will receive priority consideration at the funding level of \$10,000 per project.

It is expected that about 25 FSG awards will be made this year. Funding is arranged through the Offices of Research and College/School Deans.

Recipients of FSG as lead faculty are not eligible to receive another FSG award as lead faculty within three years from the last FSG award. Projects funded by FSG are not eligible to receive another FSG as the intent of internal seed funding is to facilitate initial research towards obtaining external funds to pursue research.

Allowable Expenses include Project supplies and small equipment, travel to conferences and/or funding agencies, travel expenses for funding agency people to visit NJIT, student hourly wages. Faculty summer salary, AY release and any stipend are not permitted in the budget.

#### **Deadlines:**

CFP Announcement: February 25, 2019

FSG Proposal Due in the Office of College/School Dean: April 10, 2019

College/School Dean Recommendations to Office of Research Due: April 25, 2019

Institutional Review and Announcement of Awards: May 3, 2019

Period of Award: **July 1, 2019 – June 30, 2020 (no extension will be available)**

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## **Grant Opportunity Alerts**

Keywords and Areas Included in the Grant Opportunity Alert Section Below

**NSF:** NSF Program on Fairness in Artificial Intelligence in Collaboration with Amazon (FAI); Broadening Participation in Engineering (BPE); Sustained Availability of Biological Infrastructure (SABI) Core Program; Science and Technology Centers; Real-Time Machine Learning (RTML); Smart and Connected Communities (S&CC); Next Generation Networks for Neuroscience; Planning Grants for Engineering Research Centers (ERC); Quantum Leap Challenge Institutes (QLCI); Faculty Development in the Space Sciences; EHR Core Research: Production Engineering Education and Research (ECR: PEER); Signals in the Soil (SitS); Cyber-Physical Systems (CPS); ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE); Growing Convergence Research (GCR); Harnessing the Data Revolution (HDR): Transdisciplinary Research in Principles of Data Science Phase I (HDR TRIPODS Phase I); Harnessing the Data Revolution (HDR)

**NIH:** NIH Director's Transformative Research Awards (R01); Institutional Translational Research Training Program (T32); Undergraduate Research Training Initiative for Student Enhancement (U-RISE) (T34); NINDS Institutional Research Training Program (T32); Team-Based Design in Biomedical Engineering Education (R25); Summer Research Education Experience Program (R25); Clinical and Biological Measures of TBI-related dementia including Chronic Traumatic Encephalopathy (CTE) (R01); Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship (Parent F31); Shared Instrumentation Grant (SIG) Program (S10); Shared Instrumentation for Animal Research (SIFAR) Grant Program (S10); High-End Instrumentation (HEI) Grant Program (S10); NHLBI Emerging Investigator Award (EIA) (R35); Bioengineering Research Grants (BRG) (R01)

**Department of Transportation:** Pipeline Safety Research Competitive Academic Agreement Program (CAAP); Innovative Technology Deployment (HP-ITD); Dwight David Eisenhower Transportation Fellowship Program (DDETFP) Graduate Fellowship

**Department of Defense/US Army/DARPA/ONR:** DoD Parkinson's Investigator-Initiated Research Award; DoD Autism Idea Development Award; Real Time Machine Learning (RTML); Science of Artificial Intelligence and Learning for Open-world Novelty (SAIL-ON); Air Force Fiscal Year 2020 Young Investigator Research Program (YIP); Multidisciplinary Research Program of the University Research Initiative (FY20 ARMY and FY AFOSR); Multidisciplinary Research Program of the University Research Initiative (ONR); Department of Defense Advanced Computing Initiative (ACI); Bioelectronics for Tissue Regeneration (BETR); Army Research Laboratory Broad Agency Announcement for Basic and Applied Scientific Research; 2020 Defense University Research Instrumentation Program (DURIP)- ARMY; ERDC Broad Agency Announcement; Measuring Biological Aptitude

**Department of Education:** Fulbright-Hays Group Projects Abroad (GPA) Short-Term Project)

**EPA:** A National Student Design Competition Focusing on People, Prosperity and the Planet - Safe and Sustainable Water Resources

**Department of Energy:** Solar Energy Technologies Office FY19 Funding Program; 2019 Wind Energy Technologies Office Funding Opportunity Announcement; Data Science for Discovery in Chemical and Materials Sciences; Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0002022; FY 2019 Bioenergy Technologies Office (BETO) Multi-topic Request for Information (RFI)

**NASA:** Heliophysics Theory, Modeling, and Simulations; Astrophysics Research and Analysis; Heliophysics Data Environment Emphasis; ROSES 2018: Planetary Protection Research

**National Endowment of Humanities:** Research and Development Program; Fellowships

**Environment Research and Education Foundation:** Research on Sustainable Solid Waste Management

## **Recent Research Grant and Contract Awards**

Congratulations to faculty and staff on receiving research grant and contract awards!

**PI:** Kamalesh Sirkar (PI)

**Department:** Chemical and Material Engineering

**Grant/Contract Project Title:** Novel Membrane-Based Fabrics and Materials for Chemical and Biological Protection

**Funding Agency:** U.S. Department of Defense (DTRA)

**Duration:** 04/7/16-04/06/20

**PI:** Neil Maher (PI)

**Department:** Humanities

**Grant/Contract Project Title:** Fellowship-Seeing Nature: An Environmental Humanities Field Guide to Visual Culture

**Funding Agency:** Ludwig Maximilian University (LMU)-Rachel Carson Center for Environment & Society

**Duration:** 05/15/19-08/15/19

**PI:** Janice Daniel (PI)

**Department:** Civil and Environmental Engineering

**Grant/Contract Project Title:** Evaluation of TNC Pilot Programs

**Funding Agency:** NJ Transit

**Duration:** 02/01/19-01/31/20

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## **In the News...**

(National and Federal News Related to Research Funding and Grant Opportunities)

**NSF, AMAZON TEAM UP ON AI 'FAIRNESS':** NSF and Amazon are partnering to jointly support computational research focused on fairness in AI, with the goal of contributing to trustworthy AI systems that are readily accepted and deployed to tackle grand challenges facing society. Specific topics of interest include, but are not limited to transparency, explainability, accountability, potential adverse biases and effects, mitigation strategies, validation of fairness, and considerations of inclusivity. Funded projects will enable broadened acceptance of AI systems, helping the U.S. further capitalize on the potential of AI technologies. Although Amazon provides partial funding for this program, it will not play a role in the selection of proposals for award. The RFP and more information is posted on the website [https://www.nsf.gov/pubs/2019/nsf19571/nsf19571.htm?WT.mc\\_id=USNSF\\_179](https://www.nsf.gov/pubs/2019/nsf19571/nsf19571.htm?WT.mc_id=USNSF_179) More details are included in the grant opportunity section below.

**\$36 MILLION FOR SOLAR-GRID RESILIENCE:** Seven universities and several companies will share research money intended to "advance solar energy's role in strengthening the resilience of the nation's electricity grid," the Department of Energy says. "With more and more solar being added to the U.S. electricity generation portfolio, these projects will enable grid operators to rapidly detect physical and cyber-based abnormalities in the power system and utilize solar generation to recover quickly from power outages, in many cases without human control." [See the winning projects.](#)

**NSF REPORT on AMERICA'S WORKFORCE:** According to the recent National Science Board publication, our Nation's Future Competitiveness Relies on Building a STEM-Capable Workforce: A Policy Companion to Science and Engineering Indicators 2018, the number of U.S. jobs requiring "substantial science, technology, engineering, and mathematics (STEM) expertise" has increased 34 percent over the past decade. A workshop by the Business Higher Education Forum and National Science Foundation concluded that the nation needs "a STEM-capable U.S. workforce that leverages the hard work, creativity, and ingenuity of women and men of all ages, all education levels, and all backgrounds." Participants, including ASEE representatives, recommended:

- Support creation of education ecosystems, pathways, and workforce partnership models that result in dissemination and wide-spread take-up of research findings by the broader community.
- Plan and implement new federal programs and activities focused on STEM-capable workforce development, diversification, and reskilling.
- Facilitate coordination both internally within each federal agency and externally across all agencies on workforce development.
- Create a clearinghouse of policies, best practices, and recommendations for state and local governments to align and leverage federal legislation related to STEM, STEMcapable, and broader workforce-related topics. [Read the full report.](#)

**QUANTUM LEAP:** NSF Director France Córdova [tells Nextgov](#) the field of quantum information sciences could be on the verge of a significant breakthrough in the coming years. NSF played a critical role in the "first quantum revolution," which helped create lasers and computer chips, the publication reports, "and today she said the field 'is ready for its second revolution' in the information sciences. 'If I've had any surprises in the time I've been [NSF director], it's how advanced that particular branch of the field is,' she said. 'The research is at hand and just needs a little more investment. I think that something very exciting will happen' in the next three to five years." Chief among those industries is artificial intelligence, a technology the White House sees as increasingly critical to the country's national and economic security. In the [national AI strategy](#) released last month, the Trump administration called on agencies to double down on efforts to advance AI and help the U.S. workforce navigate an increasingly tech-heavy job market. More information is on the website <https://www.nextgov.com/emerging-tech/2019/03/nsf-director-approaching-uncertain-tech-landscape-confidence/155724/>

**URGE TO CONVERGE:** NSF's [Convergence Accelerator Pilot](#) has two goals: "to accelerate use-inspired convergence research in areas of national importance, and initiate convergence team-building capacity around exploratory, potentially high-risk proposals in three convergence topics (tracks). . . . NSF is planning to fund approximately 50 Phase 1 awards (up to 9 months and up to \$1 million each). Additional funds will be available for a smaller number of Phase 2 awards. The first-step to become part of the NSF C-Accel Pilot is to submit a 2-page Research Concept Outline (RCO), aligned with one of the tracks described below, with a target submission date of April 15, 2019." The NSF C-Accel Pilot consists of three tracks, with each track aligned with one of [NSF's 10 Big Ideas](#), namely [Harnessing the Data Revolution \(HDR\)](#) (track A1) and the [Future of Work at the Human-Technology Frontier \(FW-HTF\)](#) (tracks B1 and B2). These tracks also align with Administration R&D Priorities including leadership in artificial intelligence (see [July 2018 memo M-18-22](#)), the President's Management Agenda (see [Cross Agency Priority Goals](#)), and the U.S. [5-Year STEM Education Strategic Plan](#). The NSF C-Accel Pilot's tracks focus on use-inspired research with relatively short timeframes for deliverables and are intended to leverage partnerships. The tracks build upon existing convergence research with the intention of accelerating discovery and innovation, leading to deliverable research products. More information is on the website <https://www.nsf.gov/pubs/2019/nsf19050/nsf19050.jsp?org=NSF>

## **Energy Department Announces \$10 Million for Marine Energy Research and Testing Program:**

The U.S. Department of Energy (DOE) announced funding to establish a new testing program for marine energy technologies. [The U.S. Testing Expertise and Access for Marine Energy Research \(TEAMER\) Program](#) will bring together capabilities from universities and the national laboratory system to provide marine energy developers ready-access to unique, world-class testing facilities and expertise. Physical testing of devices and components is a critical step to validate device performance and computer models throughout the research and development (R&D) process. Testing marine and hydrokinetic (MHK) devices is inherently more complex and time consuming than testing other, land-based energy technologies, and as facilities appropriate for testing wave and tidal power systems often have limited availability.

The U.S. TEAMER Program is designed to address and overcome these barriers. Through its network of facilities and testing protocols, the program will simplify access and reduce costs of testing for MHK technology developers – ensuring access to the appropriate facilities at the appropriate time. Through TEAMER, marine energy technology developers will gain:

**1. Access to testing infrastructure.** TEAMER will provide device developers with access to a wide range of pre-certified facilities at minimal cost, and allow for a much faster and more streamlined integration of physical testing and validation into the design process.

**2. Access to world-class expertise.** TEAMER will pair technology companies with the nation’s leading marine energy experts, providing assistance in the design and execution of tests and understanding the implication of results for future design iterations.

**3. Comparable testing protocols and data.** TEAMER will establish consistent testing protocol as a condition for access to facilities, ensure tests are conducted accordingly, and create a repository of marine energy performance data that will serve the industry as a whole.

The Program will be a collaborative effort including universities as well as national laboratories and National Marine Renewable Energy Centers. Funding will be made available through the U.S. TEAMER Program to support MHK device developer-proposed activities, and a strong network director will ensure the Program runs effectively and efficiently.

More information is on the website <https://www.energy.gov/eere/articles/energy-department-announces-10-million-marine-energy-research-and-testing-program>

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## **Webinar and Events**

**Event: Webcast: Convergence Accelerator Pilot (NSF C-Accel) Webinars**

**Sponsor: NSF**

**When: April 3, 2019; 2.00 PM – 3.00 PM**

**Website: [https://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=298145&org=NSF](https://www.nsf.gov/events/event_summ.jsp?cntn_id=298145&org=NSF)**

**Brief Description:** The NSF Convergence Accelerator Pilot (NSF C-Accel) seeks to accelerate use-inspired convergence research in areas of national importance by facilitating convergent team-building capacity around exploratory, potentially high-risk proposals. The initiative reflects NSF’s commitment to be at the cutting edge, supporting fundamental research while encouraging rapid advances through partnerships between academic and non-academic stakeholders. It will begin with three convergence tracks that align with two of NSF’s 10 Big Idea themes: (1) Harnessing the Data Revolution for 21st-Century Science and Engineering (HDR) and (2) the Future of Work at the Human-Technology Frontier (FW-HTF).

These three tracks are:

- *An Open Knowledge Network* (as part of HDR);
- *AI and Future Jobs* (as part of FW-HTF); and
- *A National Talent Ecosystem* (as part of FW-HTF).

**To join the webinar:** please register at

URL: <https://nsf2.webex.com/nsf2/onstage/g.php?MTID=e04d3fd93478e4f349d47b0dc6db31fb0>



Meeting ID/Event number: 902 798 511 Event Password: Ca2019!

**Event: Science, Technology, and the Erosion of the Market Economy**

**Sponsor: NSF**

**When: April 3, 2019; 11.00 AM – 12.00 PM**

**Website:** [https://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=298009&org=NSF](https://www.nsf.gov/events/event_summ.jsp?cntn_id=298009&org=NSF)

**Brief Description:** On behalf of the NSF Directorate for Engineering, please join us on Wednesday, April 3, 2019 for a Distinguished Lecture by Dr. Rebecca Richards-Kortum of Rice University. Her lecture is titled "Integrating engineering education and research to develop tools that reduce domestic and global health inequities."

**Bio:** Richards-Kortum's research has been instrumental in improving early detection of cancers and other diseases, especially in low-resource settings. Her Optical Spectroscopy and Imaging Laboratory integrates advances in nanotechnology and molecular imaging with microfabrication technologies to develop optical imaging systems that are inexpensive, portable, and provide point-of-care diagnosis. Her research has led to the development of 40 patents. She is author of the textbook *Biomedical Engineering for Global Health*, more than 230 refereed research papers, and 11 book chapters. She is a member of the National Academy of Sciences, the National Academy of Engineering, the American Academy of Arts and Sciences and the National Academy of Inventors, and numerous other organizations.

**To join the webinar:** please register at: <http://www.tvworldwide.com/events/nsf/190328/>

**Event: Webcast: Presidential Awards for Excellence in Mathematics and Science Teaching Events**

**Sponsor: NSF**

**When: April 6, 2019; 2.00 PM – 3.00 PM**

**Website:** [https://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=298106&org=NSF](https://www.nsf.gov/events/event_summ.jsp?cntn_id=298106&org=NSF)

**Brief Description:** The Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST) are the highest honors bestowed by the United States government for K-12 science, technology, engineering, mathematics, and/or computer science teaching, with up to 108 teachers awarded each year. Awardees receive \$10,000 from NSF, attend an awards ceremony in Washington, D.C., and receive a certificate signed by the President of the United States.

This year, the program is recognizing 7-12 grade teachers and is currently accepting nominations. To nominate an excellent science, technology, engineering, mathematics, and/or computer science teacher, visit <https://www.paemst.org/nomination/nominate>. Deadline for nominations is April 1<sup>st</sup>.

Applicant webinars will be held throughout the cycle to provide PAEMST nominees and applicants an in-depth look at the application, feature tips from alumni, and answer all questions. Please consider joining the team for an upcoming applicant webinar **between March 27 and April 30** to learn more about the program and application process.

To register for a webinar: Register at [www.paemst.org/webinar](http://www.paemst.org/webinar). The full schedule is as follows:

- Saturday, April 6 at 2:00pm EDT
- Monday, April 15 at 7:00pm EDT
- Saturday, April 20 at 2:00pm EDT
- Tuesday, April 23 at 7:00pm EDT
- Thursday, April 25 at 8:00pm EDT
- Tuesday, April 30 at 6:00pm EDT

NSF manages PAEMST on behalf of the White House Office of Science and Technology Policy.

**Event: NSF Distinguished Lecture Series in Mathematical and Physical Sciences**

**Sponsor: NSF**

**When: April 15, 2019 from 2.00 PM**

**Website:** [http://sites.nationalacademies.org/deps/bmsa/deps\\_183972](http://sites.nationalacademies.org/deps/bmsa/deps_183972)

**Brief Description:**

Prof. Vicky Kalogera (Northwestern University)



April 15, 2019, 2:00 p.m., Room E3410

*"Life Crystals"*

Prof. Pupa Gilbert (University of Wisconsin)

May 20, 2019, 2:00 p.m., Room E2020

*"Quantum Chemistry: Present and Future Directions"*

Prof. Garnet Chan (California Institute of Technology)

**To join the webinar:** All Distinguished Lectures in Mathematical and Physical Sciences from 2014 through 2017 can be viewed on the web (please [click here](#)).

### **Event: Real-Time Machine Learning (RTML) Webinar**

**Sponsor:** NSF

**When:** April 3, 2019; 3.00 PM – 4.00 PM

**Website:** [https://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=298083&org=NSF](https://www.nsf.gov/events/event_summ.jsp?cntn_id=298083&org=NSF)

**Brief Description:** A grand challenge in computing is the creation of machines that can proactively interpret and learn from data in real time, solve unfamiliar problems using what they have learned, and operate with the energy efficiency of the human brain. While complex machine-learning algorithms and advanced electronic hardware (henceforth referred to as 'hardware') that can support large-scale learning have been realized in recent years and support applications such as speech recognition and computer vision, emerging computing challenges require real-time learning, prediction, and automated decision-making in diverse domains such as autonomous vehicles, military applications, healthcare informatics and business analytics.

A salient feature of these emerging domains is the large and continuously streaming data sets that these applications generate, which must be processed efficiently enough to support real-time learning and decision making based on these data. This challenge requires novel hardware techniques and machine-learning architectures. This solicitation seeks to lay the foundation for next-generation co-design of RTML algorithms and hardware, with the principal focus on developing novel hardware architectures and learning algorithms in which all stages of training (including incremental training, hyperparameter estimation, and deployment) can be performed in real time.

The National Science Foundation (NSF) and the Defense Advanced Research Projects Agency (DARPA) are teaming up through this [Real-Time Machine Learning \(RTML\)](#) program to explore high-performance, energy-efficient hardware and machine-learning architectures that can learn from a continuous stream of new data in real time, through opportunities for post-award collaboration between researchers supported by DARPA and NSF.

**To join the webinar:** please register

at: <https://nsf2.webex.com/nsf2/onstag/g.php?MTID=e1f958188ea25c7217d011ff2955439fe>

### **Event: I-Corps Bio-Entrepreneurship Workshop**

**Sponsor:** UNH ICorps

**When:** June 2-5, 2019; Applications are due Monday, April 15 at 5 PM eastern time

**Website:** <https://innovation.unh.edu/icorps/i-corps-bio-entrepreneurship-workshop>

**Brief Description:** The United Negro College Fund, the National Science Foundation, the Biotechnology Innovation Organization (BIO), the Ernest E. Just Institute for the Life Sciences, University of New Hampshire I-Corps, CSU I-Corps, MIT I-Corps, and Penn I-Corps have partnered to offer a Bio-Entrepreneurship Workshop during the Biotechnology International Conference (BIO 2019; [convention.bio.org](http://convention.bio.org)) in Philadelphia, Pennsylvania June 2-5, 2019. A 3-day I-Corps Bio-Entrepreneurship Workshop, including BIO International Convention exhibition access. Work on teams with industry mentors to learn about biotechnology commercialization, grow your professional network, and explore entrepreneurial opportunities that build on basic research.

Early-career life science researchers from groups underrepresented in biotechnology research organizations. Research-active undergraduate and graduate students, postdoctoral fellows, and assistant professors from universities and colleges nationwide are eligible to participate. Researchers from

Historically Black Colleges and Universities, Hispanic Serving Institutions, Tribal Colleges and Universities, and minority-serving institutions are especially encouraged to apply.

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## **Grant Opportunities**

### **National Science Foundation**

#### **Grant Program: NSF Program on Fairness in Artificial Intelligence in Collaboration with Amazon (FAI)**

**Agency: National Science Foundation NSF 19-571**

**RFP Website:** [https://www.nsf.gov/pubs/2019/nsf19571/nsf19571.htm?WT.mc\\_id=USNSF\\_179](https://www.nsf.gov/pubs/2019/nsf19571/nsf19571.htm?WT.mc_id=USNSF_179)

**Brief Description:** NSF has long supported transformative research in artificial intelligence (AI) and machine learning (ML). The resulting innovations offer new levels of economic opportunity and growth, safety and security, and health and wellness. At the same time, broad acceptance of large-scale deployments of AI systems relies critically on their trustworthiness which, in turn, depends upon the collective ability to ensure, assess, and ultimately demonstrate the fairness, transparency, explainability, and accountability of such systems. Importantly, the beneficial effects of AI systems should be broadly available across all segments of society.

NSF and Amazon are partnering to jointly support computational research focused on fairness in AI, with the goal of contributing to trustworthy AI systems that are readily accepted and deployed to tackle grand challenges facing society. Specific topics of interest include, but are not limited to transparency, explainability, accountability, potential adverse biases and effects, mitigation strategies, validation of fairness, and considerations of inclusivity. Funded projects will enable broadened acceptance of AI systems, helping the U.S. further capitalize on the potential of AI technologies. Although Amazon provides partial funding for this program, it will not play a role in the selection of proposals for award.

Advancing AI is a highly interdisciplinary endeavor drawing on fields such as computer science, information science, engineering, statistics, mathematics, cognitive science, and psychology. As such, NSF and Amazon expect these varied perspectives to be critical for the study of fairness in AI. NSF's ability to bring together multiple scientific disciplines uniquely positions the agency in this collaboration, while building AI that is fair and unbiased is an important aspect of Amazon's AI initiatives. This program supports the conduct of fundamental computer science research into theories, techniques, and methodologies that go well beyond today's capabilities and are motivated by challenges and requirements in real systems.

**Awards:** Standard and Continuing Grants. \$750,000 - up to a maximum of \$1,250,000 for periods of up to 3 years. Anticipated Funding: \$7,600,000.

**Letter of Intent:** May 10, 2019

**Proposal Submission Deadline:** June 25, 2019

**Contacts:** Todd Leen, Program Director, CISE/IIS, telephone: (703) 292-8930, email: [tleen@nsf.gov](mailto:tleen@nsf.gov)

- Sylvia Spengler, Program Director, CISE/IIS, telephone: (703) 292-8930, email: [sspengle@nsf.gov](mailto:sspengle@nsf.gov)
- Steven Breckler, Program Director, SBE/BCS, telephone: (703) 292-7369, email: [sbreckle@nsf.gov](mailto:sbreckle@nsf.gov)

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#### **Grant Program: Broadening Participation in Engineering (BPE)**

**Agency: National Science Foundation PD 19-7680**

**RFP Website:**

[https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505632&org=NSF&sel\\_org=NSF&from=fund](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505632&org=NSF&sel_org=NSF&from=fund)

**Brief Description:** NSF seeks to strengthen the future U.S. Engineering workforce by enabling the participation of all citizens through the support of research in the science of Broadening Participation in Engineering (BPE). The BPE program is a dedicated to supporting the development of a diverse and well-prepared engineering workforce. BPE focuses on enhancing the diversity and inclusion of all underrepresented populations in engineering, including gender identity and expression, race and ethnicity (African Americans/Blacks, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders), disability, LGBTQ+, first generation college and socio-economic status.

BPE funds research to

- Understand and analyze the systemic barriers that prevent underrepresented groups from pursuing and succeeding in engineering, for example, understand the problem of insufficient interest and poorly sustained participation in engineering across underrepresented demographic groups; insignificant preparation and scarce opportunities for members of underrepresented groups to learn meaningful, relevant engineering content.
- Understand and analyze factors that enhance our ability to increase access to engineering by creating support systems and social networks that raise career awareness about different engineering pathways.
- Develop innovative methods and projects to significantly impact the recruitment and retention of engineering students from underrepresented groups. Activities must be supported by relevant data and have the capability to produce a model that can be replicated in other contexts.
- Develop innovative methods and projects to aggressively recruit and retain tenure track faculty from underrepresented groups.
- Design and transform culture to make diversity, equity, and inclusion a priority in the engineering enterprise.

BPE research activities will provide scientific evidence that engineering educators, employers, and policy makers need to make informed decisions to design effective programs that broaden the participation of persons from historically underrepresented groups in the engineering workforce. BPE is interested in funding research that spans K-12 to workforce and offers the greatest return on investment. BPE funded research should produce outcomes that are scalable, sustainable, and applicable to various contexts, settings, and demographics within the engineering enterprise. BPE is particularly interested in research that employs intersectional approaches in recognition that gender, race and ethnicity do not exist in isolation from each other and from other categories of social identity.

**Awards:** Average award is \$350,000 for 36 months

**Letter of Intent:** Not required

**Proposal Submission Deadline:** No deadline

**Contacts:** Paige E. Smith [psmith@nsf.gov](mailto:psmith@nsf.gov) 703-292-7107

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## **Grant Program: Sustained Availability of Biological Infrastructure (SABI) Core Program**

**Agency:** National Science Foundation NSF 19-569

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19569/nsf19569.htm>

**Brief Description:** The Sustained Availability of Biological Infrastructure program (SABI) supports the continued operation of extant infrastructure that will advance basic biological research. Infrastructure supported under this program may include cyberinfrastructure, instrumentation, experimental or observational facilities, biological living stocks which have ongoing costs of operation and maintenance that exceed the reasonable capacity of the host institution. Proposals must make a compelling case that sustained availability of the proposed infrastructure will advance or transform research in biological sciences as supported by the National Science Foundation.

While other programs in the Division of Biological Infrastructure focus on research leading to future infrastructure or on the development or implementation of shared infrastructure, this program focuses on awards that ensure the continued availability of mature infrastructure resources critical to sustain the ability of today's scientific community to conduct leading edge research. Awards made

through this program are expected to lead to novel, impactful, and transformative science outcomes through research activities enabled by their use. Infrastructure that demonstrates substantial impact on research supported by the Directorate for Biological Sciences and its collaborating organizations is eligible for support under this program.

**Awards:** Standard and Continuing Grants. Anticipated Funding: \$5,000,000.

**Letter of Intent:** Not required

**Proposal Submission Deadline:** Proposals Accepted Anytime

**Contacts:** Peter H. McCartney, telephone: (703) 292-8470, email: [pmccartn@nsf.gov](mailto:pmccartn@nsf.gov)

- Roland P. Roberts, telephone: (703) 292-7884, email: [rolrober@nsf.gov](mailto:rolrober@nsf.gov)
  - Reed S. Beaman, telephone: (703) 292-7163, email: [rsbeaman@nsf.gov](mailto:rsbeaman@nsf.gov)
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## **Grant Program: Science and Technology Centers: Integrative Partnerships**

**Agency:** National Science Foundation NSF 19-567

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19567/nsf19567.htm>

**Brief Description:** The Science and Technology Centers (STC): Integrative Partnerships program supports exceptionally innovative, complex research and education projects that require large-scale, long-term awards. STCs focus on creating new scientific paradigms, establishing entirely new scientific disciplines and developing transformative technologies which have the potential for broad scientific or societal impact. STCs conduct world-class research through partnerships among institutions of higher education, national laboratories, industrial organizations, other public or private entities, and via international collaborations, as appropriate. They provide a means to undertake potentially groundbreaking investigations at the interfaces of disciplines and/or highly innovative approaches within disciplines. STCs may involve any area of science and engineering that NSF supports. STC investments support the NSF vision of creating and exploiting new concepts in science and engineering and providing global leadership in research and education.

Centers provide a rich environment for encouraging future scientists, engineers, and educators to take risks in pursuing discoveries and new knowledge. STCs foster excellence in education by integrating education and research, and by creating bonds between learning and inquiry so that discovery and creativity fully support the learning process.

NSF expects STCs to demonstrate leadership in the involvement of groups traditionally underrepresented in science and engineering at all levels (faculty, students, and postdoctoral researchers) within the Center. Centers use either proven or innovative mechanisms to address issues such as recruitment, retention and mentorship of participants from underrepresented groups.

Centers must undertake activities that facilitate knowledge transfer, i.e., the exchange of scientific and technical information with the objective of disseminating and utilizing knowledge broadly in multiple sectors. Examples of knowledge transfer include technology transfer, providing key information to public policy-makers, or dissemination of knowledge from one field of science to another.

The STC program supports potentially groundbreaking investigations at the interfaces of disciplines or highly innovative approaches within disciplines. STCs may involve any area of science and engineering that NSF supports. STCs exploit opportunities in science, engineering and technology where the complexity of the research agenda requires the duration, scope, scale, flexibility, and facilities that center support can provide. They help enable U.S. leadership in research in a world in which discovery, learning, and innovation enterprises are increasingly interconnected and increasingly global. Centers offer the science and engineering community a venue for developing effective mechanisms to integrate scientific and technological research and education activities; to explore better and more effective ways to educate students; to broaden participation of underrepresented groups; and to ensure the timely transfer of research and education advances made in service to society. STC partner organizations work together with the lead institution as an integrated whole to achieve the shared research, education, broadening participation, and knowledge-transfer goals of the Center.

**Awards:** Cooperative Agreements. Anticipated Funding: \$25,000,000; Up to 5 awards in FY2021

**Letter of Intent:** Not required

**Preliminary Proposals:** Submission of Preliminary Proposals is required by June 25, 2019

**Proposal Submission Deadline:** January 27, 2020

**Limit on Number of Proposals per Organization:** 3

A single organization may submit a maximum of three preliminary proposals as the lead institution. Full proposals are to be submitted only when invited by NSF. There is no limit on the number of proposals in which an organization participates as a partner institution. The STC program will not support more than one Center from any one lead institution in this competition.

**Contacts:** Dragana Brzakovic, telephone: (703) 292-8040, email: [dbrzakov@nsf.gov](mailto:dbrzakov@nsf.gov)

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### **Grant Program: Real-Time Machine Learning (RTML)**

**Agency:** National Science Foundation NSF 19-566

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19566/nsf19566.htm>

**Brief Description:** A grand challenge in computing is the creation of machines that can proactively interpret and learn from data in real time, solve unfamiliar problems using what they have learned, and operate with the energy efficiency of the human brain. While complex machine-learning algorithms and advanced electronic hardware (henceforth referred to as 'hardware') that can support large-scale learning have been realized in recent years and support applications such as speech recognition and computer vision, emerging computing challenges require real-time learning, prediction, and automated decision-making in diverse domains such as autonomous vehicles, military applications, healthcare informatics and business analytics.

A salient feature of these emerging domains is the large and continuously streaming data sets that these applications generate, which must be processed efficiently enough to support real-time learning and decision making based on these data. This challenge requires novel hardware techniques and machine-learning architectures. This solicitation seeks to lay the foundation for next-generation co-design of RTML algorithms and hardware, with the principal focus on developing novel hardware architectures and learning algorithms in which all stages of training (including incremental training, hyperparameter estimation, and deployment) can be performed in real time.

The National Science Foundation (NSF) and the Defense Advanced Research Projects Agency (DARPA) are teaming up through this Real-Time Machine Learning (RTML) program to explore high-performance, energy-efficient hardware and machine-learning architectures that can learn from a continuous stream of new data in real time, through opportunities for post-award collaboration between researchers supported by DARPA and NSF.

**Awards:** Continuing Grants. Anticipated Funding: \$10,000,000.

**Letter of Intent:** Not required

**Proposal Submission Deadline:** June 6, 2019

**Contacts:** Sankar Basu, telephone: (703) 292-7843, email: [sbasu@nsf.gov](mailto:sbasu@nsf.gov)

- Jenshan Lin, telephone: (703) 292-7950, email: [jenlin@nsf.gov](mailto:jenlin@nsf.gov)
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### **Grant Program: Smart and Connected Communities (S&CC)**

**Agency:** National Science Foundation NSF 19-564

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19564/nsf19564.htm>

**Brief Description:** Communities in the United States (US) and around the world are entering a new era of transformation in which residents and their surrounding environments are increasingly connected through rapidly-changing intelligent technologies. This transformation offers great promise for improved wellbeing and prosperity but poses significant challenges at the complex intersection of technology and society. The goal of the NSF Smart and Connected Communities (S&CC) program solicitation is to accelerate the creation of the scientific and engineering foundations that will enable smart and connected



communities to bring about new levels of economic opportunity and growth, safety and security, health and wellness, and overall quality of life.

For the purposes of this solicitation, communities are defined as having geographically-delineated boundaries—such as towns, cities, counties, neighborhoods, community districts, rural areas, and tribal regions—consisting of various populations, with the structure and ability to engage in meaningful ways with proposed research activities. A “smart and connected community” is, in turn, defined as a community that synergistically integrates intelligent technologies with the natural and built environments, including infrastructure, to improve the social, economic, and environmental well-being of those who live, work, or travel within it.

The S&CC program encourages researchers to work with communities and residents to identify and define challenges they are facing, enabling those challenges to motivate use-inspired research questions. The S&CC program **supports integrative research that addresses fundamental technological and social science dimensions of smart and connected communities** and pilots solutions together with communities. Importantly, the program is interested in projects that consider the sustainability of the research outcomes beyond the life of the project, including the scalability and transferability of the proposed solutions.

This S&CC solicitation will support research projects in the following categories:

- **S&CC Integrative Research Grants (SCC-IRGs) Tracks 1 and 2.** Awards in this category will support fundamental integrative research that addresses technological and social science dimensions of smart and connected communities and pilots solutions together with communities. Track 1 is for budgets greater than \$1,500,000 with no recommended budget limit, and for up to four years of support. Track 2 is for budgets not to exceed \$1,500,000, and for up to three years of support.
- **S&CC Planning Grants (SCC-PGs).** Awards in this category are for capacity building to prepare project teams to propose future well-developed SCC-IRG proposals. Each of these awards will provide support for a period of one year and may be requested at a level not to exceed \$150,000 for the total budget.

S&CC is a cross-directorate program supported by NSF’s Directorates for Computer and Information Science and Engineering (CISE), Education and Human Resources (EHR), Engineering (ENG), and Social, Behavioral, and Economic Sciences (SBE).

**Awards:** 35 to 40 Standard Grants. Anticipated Funding: \$43,000,000. The planning grant is for one year and the proposed budget for each planning grant should not exceed \$150,000.

**Letter of Intent:** August 6, 2019

**Proposal Submission Deadline:** September 6, 2019

**Contacts:** David Corman, Program Director, CISE/CNS, telephone: (703) 292-8754, email: [dcorman@nsf.gov](mailto:dcorman@nsf.gov)

- Radhakishan Baheti, Program Director, ENG/ECCS, telephone: (703) 292-8339, email: [rbaheti@nsf.gov](mailto:rbaheti@nsf.gov)
- Wendy Nilsen, Program Director, CISE/IIS, telephone: (703) 292-2568, email: [wnilsen@nsf.gov](mailto:wnilsen@nsf.gov)

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## **Grant Program: Next Generation Networks for Neuroscience (NeuroNex): Technology-enabled, Team-based Neuroscience**

**Agency:** National Science Foundation NSF 19-563

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19563/nsf19563.htm>

**Brief Description:** Understanding how behavior emerges from the dynamic patterns of electrical and chemical activity of brain circuits is universally recognized as one of the great, unsolved mysteries of science. Advances in recent decades have elucidated how individual elements of the nervous system and brain relate to specific behaviors and cognitive processes. However, there remains much to discover to attain a comprehensive understanding of how the healthy brain functions, specifically, the general

principles underlying how cognition and behavior relate to the brain's structural organization and dynamic activities, how the brain interacts with its environment, and how brains maintain their functionality over time.

Achieving an understanding of brain structure and function that spans levels of organization, spatial and temporal scales, and the diversity of species requires an international, transdisciplinary collaborative effort to not only integrate discipline-specific ideas and approaches but also extend them to stimulate new discoveries, and innovative concepts, theories, and methodologies.

The objective of this phase of the NeuroNex Program is the establishment of distributed, international research networks that build on existing global investments in neurotechnologies to address overarching questions in neuroscience. The creation of such global research networks of excellence will foster international cooperation by seeding close interactions between a wide array of organizations across the world, as well as creating links and articulating alliances between multiple recently launched international brain projects. The potential transformative advances in neuroscience stemming from this activity will have profound scientific and societal impacts.

The goal of this solicitation is to support collaborative networks (approximately 15 to 20 investigators in each network) comprised of international teams of disciplinarily diverse experimentalists, theorists, and research resource (including technology and cyberinfrastructure) developers working on a common foundational question in neuroscience. It is anticipated that these international networks will enable experimentation, analysis, and discovery in neuroscience at scales much larger than currently possible.

This interdisciplinary, international program is one element of NSF's broader effort directed at Understanding the Brain, a multi-year activity that includes NSF's participation in the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative (<https://www.nsf.gov/brain/>) and the phased approach to develop a research infrastructure for neuroscience as outlined in the Dear Colleague Letter [NSF 16-047](#). The need for a program that helps neuroscientists collect, standardize, manage, and analyze the large amounts of data that result from research attempting to understand how the brain functions has been recognized by stakeholders in the scientific community and by the U.S. Congress in the American Innovation and Competitiveness Act (AICA) of 2017. The NSF and international partner agencies envision a connected portfolio of transformative, integrative projects that leverage existing global investments in neurotechnologies and create synergistic links across domestic and international investigators and communities, yielding novel ways of tackling the challenges of understanding the brain in action and in context.

**Awards:** 3 to 5 Standard Grants. Anticipated Funding: \$10,000,000.

**Preliminary Proposal:** June 14, 2019

**Proposal Submission Deadline:** December 13, 2019

**Contacts:** Reed S. Beaman, telephone: (703) 292-7163, email: [rsbeaman@nsf.gov](mailto:rsbeaman@nsf.gov)

- Krastan B. Blagoev, telephone: (703) 292-4666, email: [kblagoev@nsf.gov](mailto:kblagoev@nsf.gov)
- Shubhra Gangopadhyay, telephone: (703) 292-2485, email: [sgangopa@nsf.gov](mailto:sgangopa@nsf.gov)
- Claire A. Hemingway, telephone: (703) 292-7135, email: [chemingw@nsf.gov](mailto:chemingw@nsf.gov)

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## **Grant Program: Planning Grants for Engineering Research Centers (ERC)**

**Agency:** National Science Foundation NSF 19-562

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19562/nsf19562.htm>

**Brief Description:** The ERC program is placing greater emphasis on research that leads to societal impact, including convergent approaches, engaging stakeholder communities, and strengthening team formation, in response to the NASEM study recommendations. The ERC program intends to support planning activities leading to convergent research team formation and capacity-building within the engineering community. This planning grant solicitation is designed to foster and facilitate the engineering community's thinking about how to form convergent research collaborations. To participate



in a forthcoming ERC competition, one is not required to submit a planning grant proposal nor to receive a planning grant.

**Awards:** 30 to 40 Standard Grants. Anticipated Funding: \$4,000,000. The planning grant is for one year and the proposed budget for each planning grant should not exceed \$100,000.

**Letter of Intent:** Not required

**Proposal Submission Deadline:** June 3, 2019

**Contacts:** Junhong Chen, telephone: (703) 292-4623, email: [junchen@nsf.gov](mailto:junchen@nsf.gov)

- Sandra Cruz-Pol, telephone: (703) 292-2928, email: [scrucpol@nsf.gov](mailto:scrucpol@nsf.gov)
- Dana L. Denick, telephone: (703) 292-8866, email: [ddenick@nsf.gov](mailto:ddenick@nsf.gov)

## **Grant Program: Quantum Leap Challenge Institutes (QLCI)**

**Agency: National Science Foundation NSF 19-559**

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19559/nsf19559.htm>

**Brief Description:** Quantum Leap Challenge Institutes are large-scale interdisciplinary research projects that aim to advance the frontiers of quantum information science and engineering. Research at these Institutes will span the focus areas of quantum computation, quantum communication, quantum simulation and/or quantum sensing. The institutes are expected to foster multidisciplinary approaches to specific scientific, technological, educational workforce development goals in these fields. Two types of awards will be supported under this program: (i) 12-month Conceptualization Grants (CGs) to support teams envisioning subsequent Institute proposals and (ii) 5-year Challenge Institute (CI) awards to establish and operate Quantum Leap Challenge Institutes. This activity is part of the Quantum Leap, one of the research Big Ideas promoted by the National Science Foundation (NSF). The NSF Quantum Leap Challenge Institutes program is consistent with the scope of *NSF multidisciplinary centers for quantum research and education* as described in the National Quantum Initiative Act <sup>1</sup>.

In 2016, the NSF unveiled a set of "Big Ideas," ten bold, long-term research and process ideas that identify areas for future investment at the frontiers of science and engineering (see [https://www.nsf.gov/news/special\\_reports/big\\_ideas/index.jsp](https://www.nsf.gov/news/special_reports/big_ideas/index.jsp)). The Big Ideas represent unique opportunities to position our nation at the cutting edge of global science and engineering leadership by bringing together diverse disciplinary perspectives to support convergence research. Although proposals responding 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 managed by a cross-disciplinary team of NSF Program Directors.

**Awards:** Standard Grants. Anticipated Funding: \$94,000,000; **Estimated Number of Awards:** 1 to 28

**Letter of Intent:** Required

**Proposal Submission Deadline:**

**Proposal Due Dates:**

<b>Round I (CG and CI proposals):</b>	
Letters of Intent for CG proposals due	Apr 1, 2019
CG proposals due	June 3, 2019
Letters of Intent for CI preliminary proposals (Round I) due	June 3, 2019
CI preliminary proposals (Round I) due	Aug 1, 2019
CI full proposals (by invitation only) due	Jan 2, 2020
<b>Round II (CI proposals only):</b>	

Letters of Intent for CI preliminary proposals (Round II) due	Aug 3, 2020
CI preliminary proposals (Round II) due	Sep 1, 2020
CI full proposals (by invitation only) due	Feb 1, 2021

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) ([NSF 19-1](#)).

**Contacts:** Quantum Leap Challenge Institutes, telephone: (703) 292-4861, email: [QLCI@nsf.gov](mailto:QLCI@nsf.gov)

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**Grant Program: Faculty Development in the Space Sciences**

**Agency: National Science Foundation NSF 19-558**

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19558/nsf19558.htm>

**Brief Description:** The Geospace Section of the Division of Atmospheric and Geospace Sciences is pleased to offer awards for the creation of new tenure-track faculty positions within the intellectual disciplines which comprise the space sciences to ensure the health and vitality of solar and space sciences on university teaching faculties. The aim of these awards is to integrate research topics in solar and space physics into basic physics, astronomy, electrical engineering, geoscience, meteorology, computer science, and applied mathematics programs, and to develop space physics graduate programs capable of training the next generation of leaders in this field. Space Science is interdisciplinary in nature and the Faculty Development in the Space Sciences awardees will be expected to establish partnerships within the university community. NSF funding will support the entire academic year salary and benefits of the newly recruited tenure-track faculty member for a duration of up to five years with a total award amount not to exceed \$1,500,000.

**Awards:** Continuing Grants. Anticipated Funding: \$4,500,000.

**Letter of Intent:** Not required

**Proposal Submission Deadline:** May 24, 2019

**Contacts:** S. Irfan Azeem, telephone: (703) 292-8518, email: [sazeem@nsf.gov](mailto:sazeem@nsf.gov)

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**Grant Program: EHR Core Research: Production Engineering Education and Research (ECR: PEER)**

**Agency: National Science Foundation NSF 19-557**

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19557/nsf19557.htm>

**Brief Description:** The National Science Foundation (NSF) and The Boeing Company are supporting a new initiative, managed and administered by NSF through its EHR Core Research (ECR) program, to accelerate training in critical skill areas for the Nation's engineering and advanced manufacturing workforce. The *EHR Core Research: Production Engineering Education and Research* (ECR: PEER) initiative supports foundational research arising from the design, development, and deployment of creative online curricula that provide learners at various levels with skills in five focal areas: model-based systems engineering, software engineering, mechatronics, data science, and artificial intelligence. ECR: PEER invites proposals to design, develop, deploy, and study the effectiveness of online courses in any one of these focal areas using the theories and tools of the learning sciences. Proposals for these ECR: PEER *Course, Curriculum, and Evaluation* projects may request a maximum of \$2,000,000 support for a duration of up to three years.

Additionally, ECR: PEER welcomes proposals to convene experts in the academic, for-profit, and non-profit sectors to imagine the future of production engineering education for one of the five focal areas. Proposals for these ECR: PEER *Workforce Development Workshops* may request a maximum of \$100,000 support for a duration of up to one year.

**Awards:** Standard Grants. Anticipated Funding: \$10,000,000.

**Letter of Intent:** Not required

**Proposal Submission Deadline:** May 15, 2019

**Contacts:** Radhakishan Baheti, telephone: (703) 292-8339, email: [rbaheti@nsf.gov](mailto:rbaheti@nsf.gov)

- John C. Cherniavsky, telephone: (703) 292-5136, email: [jchernia@nsf.gov](mailto:jchernia@nsf.gov)
  - David L. Haury, telephone: (703) 292-8614, email: [dhaury@nsf.gov](mailto:dhaury@nsf.gov)
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### **Grant Program: Signals in the Soil (SitS)**

**Agency:** National Science Foundation NSF 19-556

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19556/nsf19556.htm>

**Brief Description:** The National Science Foundation (NSF) Directorates for Engineering (ENG) and Geosciences (GEO), the Division of Integrative Organismal Systems in the Directorate for Biological Sciences (BIO/IOS), and the Division of Computer and Network Systems in the Directorate Computer and Information Science and Engineering (CISE/CNS), in collaboration with the US Department of Agriculture National Institute of Food and Agriculture (USDA NIFA) and the Natural Environment Research Council (NERC), the Engineering and Physical Sciences Research Council (EPSRC), the Biotechnology and Biological Sciences Research Council (BBSRC), and the Science and Technology Facilities Council (STFC) of United Kingdom Research and Innovation (UKRI) encourage convergent research that transforms existing capabilities in understanding dynamic, near-surface soil processes through advances in sensor systems and modeling. To accomplish this research, multiple disciplines must converge to produce novel sensors and/or sensing systems of multiple modalities that are adaptable to different environments and collect data and report on a wide range of chemical, biological and physical parameters. This type of approach will also be necessary to develop next generation soil models, wireless communication and cyber systems capabilities, and to grow a scientific community that is able to address complex problems through education and outreach. This program fosters collaboration among the partner agencies and the researchers they support by combining resources and funding for the most innovative and high-impact projects that address their respective missions.

**Awards:** Standard Grants. Anticipated Funding: \$5,600,000.

**Letter of Intent:** Not required

**Proposal Submission Deadline:** May 15, 2019

**Contacts:** Brandi L. Schottel, National Science Foundation Directorate for Engineering / Division of Chemical, Bioengineering, Environmental, and Transport Systems, telephone: (703) 292-4798, email: [bschotte@nsf.gov](mailto:bschotte@nsf.gov)

James W. Jones, National Science Foundation Directorate for Engineering / Division of Chemical, Bioengineering, Environmental, and Transport Systems, telephone: (703) 292-4458, email: [jwjones@nsf.gov](mailto:jwjones@nsf.gov)

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### **Grant Program: Cyber-Physical Systems (CPS)**

**Agency:** National Science Foundation NSF 19-553

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19553/nsf19553.htm>

**Brief Description:** Cyber-physical systems (CPS) are engineered systems that are built from, and depend upon, the seamless integration of computation and physical components. Advances in CPS will enable capability, adaptability, scalability, resiliency, safety, security, and usability that will expand the horizons of these critical systems. CPS technologies are transforming the way people interact with engineered systems, just as the Internet has transformed the way people interact with information. New, smart CPS drive innovation and competition in a range of application domains including agriculture, aeronautics, building design, civil infrastructure, energy, environmental quality, healthcare and personalized medicine, manufacturing, and transportation. Moreover, the integration of artificial intelligence with CPS creates new research opportunities with major societal implications.

While tremendous progress has been made in advancing CPS technologies, the demand for innovation across application domains is driving the need to accelerate fundamental research to keep pace. At the same time, the CPS program seeks to open new vistas for the research community to think beyond the usual cyber-physical paradigms and structures and propose creative ideas to address the myriad challenges of today's systems as well as those of the future that have not yet been designed or fielded.

The CPS program aims to develop the core research needed to engineer these complex CPS, some of which may also require dependable, high-confidence, or provable behaviors. Core research areas of the program include control, data analytics, autonomy, design, information management, internet of things (IoT), mixed initiatives including human-in- or on-the-loop, networking, privacy, real-time systems, safety, security, and verification. By abstracting from the particulars of specific systems and application domains, the CPS program seeks to reveal cross-cutting, fundamental scientific and engineering principles that underpin the integration of cyber and physical elements across all application domains. The program additionally supports the development of methods, tools, and hardware and software components based upon these cross-cutting principles, along with validation of the principles via prototypes and testbeds. This program also fosters a research community that is committed to advancing education and outreach in CPS and accelerating the transition of CPS research into the real world.

**Awards:** Standard Grants. Anticipated Funding: \$51,500,000.

**Letter of Intent:** Not required

**Proposal Submission Deadline:**

April 01, 2019 - April 12, 2019: Small and Medium

September 12, 2019 - September 26, 2019: Frontier

**Contacts:** David Corman, Program Director, CISE/CNS, telephone: (703) 292-8754, email: [dcorman@nsf.gov](mailto:dcorman@nsf.gov)

- Radhakisan Baheti, Program Director, ENG/ECCS, telephone: (703) 292-8339, email: [rbaheti@nsf.gov](mailto:rbaheti@nsf.gov)

- Anindya Banerjee, Program Director CISE /CCF, telephone: (703) 292-7885, email: [abanerje@nsf.gov](mailto:abanerje@nsf.gov)

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**Grant Program: ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE)**

**Agency: National Science Foundation NSF 19-552**

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19552/nsf19552.htm>

**Brief Description:** The NSF ADVANCE program contributes to the National Science Foundation's goal of a more diverse and capable science and engineering workforce.<sup>1</sup> In this solicitation, the NSF ADVANCE program seeks to build on prior NSF ADVANCE work and other research and literature concerning gender, racial, and ethnic equity. The NSF ADVANCE program goal is to broaden the implementation of evidence-based systemic change strategies that promote equity for STEM<sup>2</sup> faculty in academic workplaces and the academic profession. The NSF ADVANCE program provides grants to enhance the systemic factors that support equity and inclusion and to mitigate the systemic factors that create inequities in the academic profession and workplaces. Systemic (or organizational) inequities may exist in areas such as policy and practice as well as in organizational culture and climate. For example, practices in academic departments that result in the inequitable allocation of service or teaching assignments may impede research productivity, delay advancement, and create a culture of differential treatment and rewards. Similarly, policies and procedures that do not mitigate implicit bias in hiring, tenure, and promotion decisions could lead to women and racial and ethnic minorities being evaluated less favorably, perpetuating historical under-participation in STEM academic careers and contributing to an academic climate that is not inclusive.

All NSF ADVANCE proposals are expected to use intersectional approaches in the design of systemic change strategies for STEM faculty in recognition that gender, race and ethnicity do not exist in isolation from each other and from other categories of social identity. The solicitation includes four funding

tracks *Institutional Transformation (IT)*, *Adaptation*, *Partnership*, and *Catalyst*, in support of the NSF ADVANCE program goal to broaden the implementation of systemic strategies that promote equity for STEM faculty.

**Please note that NSF ADVANCE does not provide fellowships, research, or travel grants to individual students, postdoctoral researchers, or faculty to pursue STEM degrees or research.** Undergraduate STEM opportunities can be found at [stemundergrads.science.gov](http://stemundergrads.science.gov) and graduate STEM opportunities at [stemgradstudents.science.gov](http://stemgradstudents.science.gov).

**Awards:** Standard Grants. Anticipated Funding: \$30,000,000.

**Letter of Intent:** Required

**Proposal Submission Deadline:**

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

May 15, 2019

Letter of Intent due for May 2019 Adaptation and Partnership competition

November 01, 2019

Letter of Intent for January 2020 Adaptation and Partnership competition

**Preliminary Proposal Target Date(s) (required)** (due by 5 p.m. submitter's local time):

October 01, 2019

Target Date for IT-Preliminary proposals - preliminary proposals are only required for IHEs that want a chance to submit a full Institutional Transformation proposal

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

May 22, 2019

Adaptation and Partnership (FY 2019 competition)

January 15, 2020

Adaptation and Partnership (FY 2020 competition)

**Full Proposal Target Date(s):**

June 03, 2019

Catalyst proposals

March 02, 2020

Institutional Transformation proposals - only IHEs invited as a result of an IT-Preliminary proposal may submit a full IT proposal

**Contacts:** Minerva Cordero, Program Director, telephone: (703) 292-7377, email: [ADVANCE@nsf.gov](mailto:ADVANCE@nsf.gov)

- Jessie DeAro, Program Officer, telephone: (703) 292-5350, email: [ADVANCE@nsf.gov](mailto:ADVANCE@nsf.gov)

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## **Grant Program: Growing Convergence Research (GCR)**

**Agency: National Science Foundation NSF 19-551**

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19551/nsf19551.htm>

**Brief Description: Growing Convergence Research (GCR)** at the National Science Foundation was identified as one of 10 Big Ideas. Convergence research is a means for solving vexing research problems, in particular, complex problems focusing on societal needs. It entails integrating knowledge, methods, and expertise from different disciplines and forming novel frameworks to catalyze scientific discovery and innovation.

GCR identifies [Convergence Research](#) as having two primary characteristics:

- *Research driven by a specific and compelling problem.* Convergence Research is generally inspired by the need to address a specific challenge or opportunity, whether it arises from deep scientific questions or pressing societal needs.
- *Deep integration across disciplines.* As experts from different disciplines pursue common research challenges, their knowledge, theories, methods, data, research communities and languages become increasingly intermingled or integrated. New frameworks, paradigms or even disciplines can form sustained interactions across multiple communities.



A distinct characteristic of convergence research, in contrast to other forms of multidisciplinary research, is that from the inception, the convergence paradigm *intentionally* brings together intellectually diverse researchers and stakeholders to frame the research questions, develop effective ways of communicating across disciplines and sectors, adopt common frameworks for their solution, and, when appropriate, develop a new scientific vocabulary. Research teams practicing convergence aim at developing sustainable relationships that may not only create solutions to the problem that engendered the collaboration, but also develop novel ways of framing related research questions and open new research vistas.

This GCR solicitation targets multi-disciplinary team research that crosses directorate or division boundaries and is currently not supported by NSF programs, initiatives and research-focused Big Ideas. Proposers must make a convincing case that the research to be conducted is within NSF's purview and cannot be supported by existing NSF programs and multidisciplinary initiatives. Proposals involving convergence in areas covered by existing programs and solicitations will be returned without review.

**Awards:** Cooperative Agreement. Anticipated Funding: \$12,000,000.

**Letter of Intent:** Not required

**Proposal Submission Deadline:** May 08, 2019

**Contacts:** Dragana Brzakovic, telephone: (703) 292-8040, email: [dbrzakov@nsf.gov](mailto:dbrzakov@nsf.gov)

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**Grant Program: Harnessing the Data Revolution (HDR): Transdisciplinary Research in Principles of Data Science Phase I (HDR TRIPODS Phase I)**

**Agency: National Science Foundation NSF 19-550**

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19550/nsf19550.htm>

**Brief Description:** NSF's *Harnessing the Data Revolution (HDR) Big Idea* is a national-scale activity to enable new modes of data-driven discovery that will allow fundamental questions to be asked and answered at the frontiers of science and engineering. Through this NSF-wide activity, HDR will generate new knowledge and understanding, and accelerate discovery and innovation. The HDR vision is realized through an interrelated set of efforts in:

- Foundations of data science;
- Algorithms and systems for data science;
- Data-intensive science and engineering;
- Data cyberinfrastructure; and
- Education and workforce development.

Each of these efforts is designed to amplify the intrinsically multidisciplinary nature of the emerging field of data science. The HDR Big Idea will establish theoretical, technical, and ethical frameworks that will be applied to tackle data-intensive problems in science and engineering, contributing to data-driven decision-making that impacts society.

*Harnessing the Data Revolution: Transdisciplinary Research In Principles Of Data Science* (HDR TRIPODS) aims to bring together the electrical engineering, mathematics, statistics, and theoretical computer science communities to develop the theoretical foundations of data science through integrated research and training activities. Phase I, described in this solicitation, will support the development of small collaborative Institutes. Phase II (to be described in an anticipated future solicitation, subject to availability of funds) will support a smaller number of larger Institutes, selected from the Phase I Institutes via a second competitive proposal process. All HDR TRIPODS Institutes must involve significant and integral participation by researchers representing at least three of the four aforementioned communities. Please note that the ordering of the four communities is alphabetical and is not meant to emphasize any one discipline over another.

**Awards:** Continuing Grant. Anticipated Funding: \$22,000,000.

**Letter of Intent:** Required

**Proposal Submission Deadline:**

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

March 25, 2019

- **Submission Window Date(s)** (due by 5 p.m. submitter's local time):

April 24, 2019 - May 08, 2019

**Contacts:** Nandini Kannan, Program Director, Division of Mathematical Sciences, telephone: (703) 292-8104, email: [nakannan@nsf.gov](mailto:nakannan@nsf.gov)

- Tracy Kimbrel, Program Director, Division of Computing and Communication Foundations, telephone: (703) 292-7924, email: [tkimbrel@nsf.gov](mailto:tkimbrel@nsf.gov)
  - Anthony Kuh, Program Director, Division of Electrical, Communications, and Cyber Systems, telephone: (703) 292-2210, email: [akuh@nsf.gov](mailto:akuh@nsf.gov)
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**Grant Program: Harnessing the Data Revolution (HDR): Institutes for Data-Intensive Research in Science and Engineering - Frameworks (I-DIRSE-FW)**

**Agency: National Science Foundation NSF 19-549**

**RFP Website:**

[https://www.nsf.gov/pubs/2019/nsf19549/nsf19549.htm?WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](https://www.nsf.gov/pubs/2019/nsf19549/nsf19549.htm?WT.mc_id=USNSF_25&WT.mc_ev=click)

**Brief Description:** NSF's *Harnessing the Data Revolution (HDR) Big Idea* is a national-scale activity to enable new modes of data-driven discovery that will allow fundamental questions to be asked and answered at the frontiers of science and engineering. Through this NSF-wide activity, HDR will generate new knowledge and understanding, and accelerate discovery and innovation. The HDR vision is realized through an interrelated set of efforts in:

- Foundations of data science;
- Algorithms and systems for data science;
- Data-intensive science and engineering;
- Data cyberinfrastructure; and
- Education and workforce development.

Each of these efforts is designed to amplify the intrinsically multidisciplinary nature of the emerging field of data science. The HDR Big Idea will establish theoretical, technical, and ethical frameworks that will be applied to tackle data-intensive problems in science and engineering, contributing to data-driven decision-making that impacts society.

**This solicitation is for Frameworks for Data-Intensive Research in Science and Engineering (DIRSE) as part of the HDR Institutes activity.** These Frameworks represent one path of a conceptualization phase aimed at developing Institutes as part of the NSF investment in the HDR Big Idea.

The HDR Institutes activity seeks to create an integrated fabric of interrelated institutes that can accelerate discovery and innovation in multiple areas of data-intensive science and engineering. The HDR Institutes will achieve this by harnessing diverse data sources and developing and applying new methodologies, technologies, and infrastructure for data management and analysis. The HDR Institutes will support convergence between science and engineering research communities as well as expertise in data science foundations, systems, applications, and cyberinfrastructure. In addition, the HDR Institutes will enable breakthroughs in science and engineering through collaborative, co-designed programs to formulate innovative data-intensive approaches to address critical national challenges.

HDR Institutes will be developed through a two-phase process involving conceptualization followed by convergence. The conceptualization phase will be implemented in FY 2019 via two complementary funding opportunities. The first opportunity in FY 2019 will encourage individuals with compelling data-intensive science and engineering problems and/or technical expertise to self-organize into teams with the aim of developing innovative, collaborative research proposals through an Ideas Lab process. The second opportunity in FY 2019, described in this solicitation, will encourage applications from teams of researchers proposing frameworks for integrated sets of science and engineering problems and data science solutions. The conceptualization phase will result in two-year awards aimed at building communities, defining research priorities, and developing interdisciplinary prototype solutions. NSF



anticipates implementing the subsequent convergence and co-design phase in the 2021 timeframe with awards that integrate and scale successful prototypes and new ideas into larger, more comprehensive HDR Institutes that bring together multiple science and engineering communities with computer and computational scientists, mathematicians, statisticians, and information scientists around common data science approaches.

The overarching goal of the HDR Institutes DIRSE Frameworks solicitation is to foster convergent approaches to data-driven research in science and engineering. Frameworks will consist of interdisciplinary teams to conceptualize and pilot new modalities for collaboration and convergence that go beyond institutional walls and traditional disciplinary boundaries, to build innovative connections between scientific groups and data scientists and engineers, to integrate research infrastructure and education infrastructure. The Frameworks should focus on science and engineering areas that: (1) are at a "tipping point" where a timely investment in data-intensive approaches has the maximum potential for a transformative effect, (2) have needs that can benefit from interdisciplinary investments in data analytics infrastructure, and (3) represent investment priorities for the participating NSF directorates during, and beyond, the lifetime of the HDR Big Idea. Specific outcomes expected from the Frameworks include identification of frontier science and engineering challenge problems and the associated data and data-science barriers or tipping points, as well as development of new strategies and innovative approaches to foster scientific breakthroughs involving researchers from diverse scientific backgrounds.

**Awards:** Standard Grants. Anticipated Funding: \$21,000,000.

**Letter of Intent:** Not required

**Proposal Submission Deadline:** May 07, 2019

**Contacts:** Amy Walton, telephone: (703) 292-4538, email: [HDR-DIRSE@nsf.gov](mailto:HDR-DIRSE@nsf.gov)

- Nandini Kannan, telephone: (703) 292-8104, email: [HDR-DIRSE@nsf.gov](mailto:HDR-DIRSE@nsf.gov)
  - John C. Cherniavsky, telephone: (703) 292-5136, email: [HDR-DIRSE@nsf.gov](mailto:HDR-DIRSE@nsf.gov)
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## **National Institutes of Health**

**Grant Program: NIH Director's Transformative Research Awards (R01 Clinical Trial Optional)**

**Agency: National Institutes of Health RFA-RM-19-007**

**RFP Website:** <https://grants.nih.gov/grants/guide/rfa-files/RFA-RM-19-007.html>

**Brief Description:** The [NIH Director's Transformative Research Award](#) Program supports collaborative investigative teams or individual scientists who propose unusually innovative research projects, which, if successful, would have a major impact in a broad area of relevance to the NIH. To be considered transformative, projects must have the potential to create or overturn fundamental scientific paradigms through novel approaches, transform the way research is conducted through the development of novel tools or technologies, or lead to major improvements in health through the development of highly innovative therapies, diagnostic tools, or preventive strategies. Consistent with this focus, Transformative Research Award applications should reflect ideas substantially different from mainstream concepts.

Several key features of this FOA are designed to emphasize to applicants and peer reviewers that Transformative Research applications are very different from conventional, investigator-initiated research applications. The Transformative Research application focuses on the importance of the problem, the novelty of the hypothesis and/or the proposed methodology, and the magnitude of the potential impact rather than on preliminary data or experimental details. Reviewers will be instructed to emphasize the significance and innovation of the application in their evaluations. Applicants and reviewers should keep the goal of the Transformative Research Award in mind throughout the process— to solicit and fund unusually innovative and potentially transformative research.

In order to support the most innovative and impactful research, the NIH recognizes the need to promote a diverse research workforce. Applications to this award program should reflect the full diversity of potential applicants, applicant institutions, and research topic areas. Applications from talented

researchers with diverse backgrounds underrepresented in research, including underrepresented racial and ethnic groups, persons with disabilities, and women are strongly encouraged to apply to this Funding Opportunity Announcement. Outstanding research is conducted at a broad spectrum of institutions. In seeking to support the highest quality research, this Funding Opportunity Announcement encourages applications from the full range of eligible institutions, including those that may serve primarily underrepresented groups, those that may be less research-intensive, and from all domestic geographic locations. Applications are welcome in all research topics that have the potential ultimately to have a substantial impact on human health. In addition to the nominal biomedical sciences, these include, but are not limited to, relevant research topics in the behavioral, social, applied, and formal sciences. The potential for impact on human health may be near term (clinical or translational research) or long term (basic research). The paramount features of the research proposed must be innovation and magnitude of potential impact.

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

**Letter of Intent:** Not required

**Deadline:** September 20, 2019, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on this date. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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### **Grant Program: Institutional Translational Research Training Program (T32)**

**Agency:** National Institutes of Health PAR-19-228

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-19-228.html>

**Brief Description:** The purpose of the Institutional Translational Research Training Program is to equip trainees with the knowledge and skills needed to advance basic research toward clinical application. These programs will support, students and/or postdocs conducting basic, disease-relevant research in an environment that includes 1) basic scientists and clinicians who are actively engaged in collaborative research projects, 2) neuroscience researchers with expertise in translational processes who are conducting research designed to move basic discoveries toward clinical application and 3) relationships with industry and government regulatory agencies. Programs will have a cohesive educational approach to translational training in areas relevant to the NINDS and NIA missions, and in which students and postdocs learn the processes involved in translational research in the context of their individual projects. Programs supported by this FOA must include activities that ensure a thorough understanding of experimental design, strong statistical and analytical skills, and skills for communicating science with a wide variety of audiences. These programs are intended to be 2 years in duration and support training of one or more of the following groups: advanced predoctoral students, postdoctoral fellows and fellowship-stage clinicians. Upon completion of the program, trainees will be prepared to address basic research problems with an understanding of the requirements for translating discoveries into viable therapies.

This Funding Opportunity Announcement (FOA) does not allow appointed Trainees to lead an independent clinical trial but does allow them to obtain research experience in a clinical trial led by a mentor or co-mentor.

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

**Letter of Intent:** 30 days prior to the application due date

**Deadline:** May 29, 2019; May 27, 2020; May 26, 2021, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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### **Grant Program: Undergraduate Research Training Initiative for Student Enhancement (U-RISE) (T34)**

**Agency: National Institutes of Health PAR-19-218**

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-19-218.html>

**Brief Description:** The **Overarching Objective** of this Undergraduate Research Training Initiative for Student Enhancement program is to develop a diverse pool of undergraduates who complete their baccalaureate degree and transition into and complete biomedical, research-focused higher degree programs (e.g., Ph.D. or M.D./Ph.D.). The long-term goal is to develop a diverse pool of well-trained biomedical scientists, who have the following technical, operational, and professional skills:

- A broad understanding across biomedical disciplines and the skills to independently acquire the knowledge needed to advance their chosen fields;
- The ability to think critically and independently, and to identify important biomedical research questions and approaches that push forward the boundaries of their areas of study;
- A strong foundation in scientific reasoning, rigorous research design, experimental methods, quantitative and computational approaches, and data analysis and interpretation;
- A commitment to approaching and conducting biomedical research responsibly, ethically, and with integrity;
- Experience initiating, conducting, interpreting, and presenting rigorous and reproducible biomedical research with increasing self-direction;
- The ability to work effectively in teams with colleagues from a variety of cultural and scientific backgrounds, and to promote inclusive and supportive scientific research environments;
- The skills to teach and communicate scientific research methodologies and findings to a wide variety of audiences (e.g., discipline-specific, across disciplines, and the public); and
- The knowledge, professional skills and experiences required to identify and transition into careers in the biomedical research workforce (i.e., the breadth of careers that sustain biomedical research in areas that are relevant to the NIH mission).

Diversity at all levels—from the kinds of science to the regions in which it is conducted to the backgrounds of the people conducting it—contributes to excellence in research training environments and strengthens the research enterprise. This FOA is intended to support outstanding research training programs that will enhance diversity at all levels. As part of a larger initiative to enhance diversity, the U-RISE program will support trainees who are earning a baccalaureate degree at research-active institutions and who intend to complete a biomedical research higher degree program (e.g., Ph.D., or M.D./Ph.D.).

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

**Letter of Intent:** Not required.

**Deadline:** May 21, 2019; May 21, 2020; May 21, 2021, by 5:00 PM local time of applicant organization.

All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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### **Grant Program: NINDS Institutional Research Training Program (T32)**

**Agency: National Institutes of Health PAR-19-211**

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-19-211.html>

**Brief Description:** The objective of the NINDS Institutional Research Training Program is to support outstanding training with the breadth and depth to prepare advanced predoctoral and postdoctoral trainees to become successful scientists in a rapidly evolving research enterprise that is increasingly complex and multidisciplinary. Neuroscience research requires investigators who can draw on knowledge and approaches from multiple disciplines and levels of analysis, and apply this broad knowledge in novel ways to yield new discoveries about the nervous system. Moreover, impactful neuroscience research requires investigators with strong foundational skills in experimental design, statistical methodology and quantitative reasoning.

**Summary of key points.** It is expected that the programs supported under this funding opportunity announcement will provide:

- training and activities with a defined goal and within a thematic area that will add depth and breadth to the trainees' scientific development
- an emphasis on sound experimental design, the proper use of statistical methodology and a theoretical understanding by each trainee of the quantitative limits and capabilities of his or her experimental system (quantitative literacy)
- effective oversight of trainee mentoring and progression to the next career stage
- an environment that promotes the success of individuals with a wide variety of backgrounds and perspectives
- direct access to an appropriate diversity of role models, both within the institution and through activities such as invited seminars.
- activities for trainees to develop oral and written skills for communicating their science to a wide variety of audiences
- access to structured career development advising and opportunities to learn about career options in various sectors

Moreover, NINDS T32 support should only be provided to trainees in labs of mentors who proactively ensure the opportunity to lead and be first author on a significant project.

The proposed institutional research training program may complement other ongoing research training and career development programs at the applicant institution, but the proposed program must be clearly distinct from related programs currently receiving Federal support.

**Award:** Application budgets are not limited, but need to reflect the actual needs of the proposed project up to 5 years.

**Letter of Intent:** 30 days prior to the application due date

**Deadline:** May 29, 2019; May 27, 2020; May 26, 2021, by 5:00 PM local time of applicant organization.

All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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## **Grant Program: Team-Based Design in Biomedical Engineering Education (R25 Clinical Trial Not Allowed)**

**Agency:** National Institutes of Health PAR-19-215

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-19-215.html>

**Brief Description:** The NIH Research Education Program (R25) supports research educational activities that complement other formal training programs in the mission areas of the NIH Institutes and Centers. The over-arching goals of the NIH R25 program are to: (1) complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs; (2) encourage individuals from diverse backgrounds, including those from groups underrepresented in the biomedical and behavioral sciences, to pursue further studies or careers in research; (3) help recruit individuals with specific specialty or disciplinary backgrounds to research careers in biomedical, behavioral and clinical sciences; and (4) foster a better understanding of biomedical, behavioral and clinical research and its implications.

The over-arching goal of this NIBIB R25 program is to support educational activities that complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs. To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on:

- ***Courses for Skills Development:*** For example, courses and programs that, using a team-based design approach, incorporate state-of-the-art best practices (such as multidisciplinary/interdisciplinary education, the regulatory pathway and other issues related to the commercialization of medical devices, and the immersion of engineering

students in a clinical environment) and further enhance these with novel creative and/or ground-breaking approaches and activities which will be implemented and evaluated with the goal of disseminating the outcomes for the benefit of the larger biomedical engineering education community.

Research education programs may complement ongoing research training and education occurring at the applicant institution, but the proposed educational experiences must be distinct from those training and education programs currently receiving Federal support. R25 programs may augment institutional research training programs (e.g., T32, T90) but cannot be used to replace or circumvent Ruth L. Kirschstein National Research Service Award (NRSA) programs.

**Award:** Direct costs of up to \$20,000 per year may be requested. Programs that include a clinical immersion program outside the academic year and lasting 6 to 10 weeks may request an additional \$20,000 to cover participant costs (see Participant Costs section below), yielding a total of \$40,000 in direct costs.

**Letter of Intent:** April 29, 2019, April 27, 2020, April 26, 2021

**Deadline:** May 31, 2019; May 28, 2020; May 28, 2021, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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### **Grant Program: Summer Research Education Experience Program (R25 Clinical Trial Not Allowed)**

**Agency:** National Institutes of Health PAR-19-197

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-19-197.html>

**Brief Description:** The over-arching goal of this R25 program is to support educational activities that complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs. To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on:

- **Research Experiences:** For example, for high school and undergraduate students: to provide hands-on exposure to research, to reinforce their intent to graduate with a science degree and/or continue to participate in research, and/or to prepare them for college or graduate school admissions and/or careers in research; for high school science teachers: to enhance their science teaching.
- Support for science teachers will be limited to those programs with a clear plan for how teachers will utilize their summer experience in their teaching during the school year, such as enhancing the STEM curriculum or increasing number of STEM courses taught.
- Applications that demonstrate the potential to impact students and teachers from diverse backgrounds are particularly encouraged.
- In addition to hands-on research experiences, programs are expected to include complementary activities that support the participants' scientific development, such as scientific writing and presentation skills and training in rigor and reproducibility.
- The proposed program needs to fit with the mission of the participating IC that the application is being submitted to and should not have a general STEM focus. ICs will not support projects, regardless of the results of merit review, if they do not fulfill current programmatic priorities. Therefore, we strongly recommend that potential applicants consult Scientific/Research Staff at the intended IC listed in Section VII before preparing an application. For the specific ICs, the following represents mission focus areas (more information can be found on the Table of IC-Specific Information and Contacts page):
- NIAAA broadly encourages research that focuses on the following 5 goals: (1) identifying the mechanism of; (2) improve diagnosis and tracking of; (3) develop and improve strategies to prevent; and (4) develop and improve treatments for alcohol misuse, alcohol



- use disorder and alcohol-related consequences; and (5) enhance the public health impact of NIAAA-supported research.
- **NIBIB** will support applications focusing on summer research experiences broadly in the areas of biomedical imaging, bioengineering, or health informatics. NIBIB will support programs only for high school science teachers and community college faculty from STEM-related departments, and not for students.
  - **NIDA**. Four main goals outline the broad scope of NIDA's strategic objectives: (1) identify the biological, environmental, behavioral, and social causes and consequences of drug use and addiction across the lifespan; (2) develop new and improved strategies to prevent drug use and its consequences; (3) develop new and improved treatments to help people with substance use disorders achieve and maintain a meaningful and sustained recovery; (4) increase the public health impact of NIDA research and programs.
  - **NIEHS** will support applications focusing on summer research experiences in the environmental health sciences. Applications to NIEHS should provide research experiences that address or seek to understand how exposures to toxic environmental insults impact health, alter biologic processes, are linked to disease initiation, progression or morbidity, or activities that lead to the development of prevention and intervention strategies to reduce environmentally induced diseases.
  - **NINDS** will support applications focusing on summer research experiences that address or seek fundamental knowledge about the brain and nervous system by supporting and conducting research on the healthy and diseased brain, spinal cord, and peripheral nerves and to use that knowledge to reduce the burden of neurological disease.

Research education programs may complement ongoing research training and education occurring at the applicant institution, but the proposed educational experiences must be distinct from those training and education programs currently receiving Federal support. R25 programs may augment institutional research training programs (e.g., T32, T90) but cannot be used to replace or circumvent Ruth L. Kirschstein National Research Service Award (NRSA) programs.

**Award:** Although the size of award may vary with the scope of the Summer Research Program proposed, budgets cannot exceed \$100,000 direct costs per year.

**Letter of Intent:** 30 days prior to application due date

**Deadline:** April 23, 2019, March 17, 2020, March 17 2021, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

**Grant Program: Clinical and Biological Measures of TBI-related dementia including Chronic Traumatic Encephalopathy (CTE) (R01 Clinical Trial Not Allowed)**

**Agency: National Institutes of Health RFA-NS-19-026**

**RFP Website:** <https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-19-026.html>

**Brief Description:** Applications to this FOA will be expected to discover and develop biological and clinical measures of TBI-related progressive neurodegeneration and cognitive decline associated with increased risk for dementia including traumatic encephalopathy syndrome (TES) (clinicopathologic diagnostic counterpart to the neuropathological diagnosis of Chronic Traumatic Encephalopathy (CTE)). Results are expected to inform dementia risk prognoses for patients with history of TBI, using objective clinical and pathophysiologically relevant biological measures. Addressing this goal will require (1) enhanced, validated methods for assessing individual's lifetime exposure to TBI (across varying levels of frequency, severity, and time since injury), (2) accounting for chronic but non-progressive neurocognitive impairment following TBI, and (3) access to an existing longitudinal cohort with a history of TBI exposure and / or dementia cohort with measures of TBI-exposure history. Applicants to this FOA are

expected to assess hypothesis-driven objective biological measures and clinical assessments of progressive neurodegeneration, neurocognitive impairment, and neuropsychiatric dysfunction that, in persons with a history of exposure to TBI, may catalyze pathological pathways associated with AD / ADRD and TES. Biological measures may include but are not limited to neuroimaging (such as CT, MRI and PET imaging), vascular reactivity, assessments of sleep, oculomotor and vestibular function, blood-based biomarkers, proteomics, transcriptomics, metabolomics, biofluid markers from samples of CSF and saliva, and known genetic markers of dementia risk.

To address the heterogeneity of post-TBI clinicopathology and extend the generalizability of results, applications to this FOA are expected to recruit both male and female participants with history of TBI across multiple injury severities. These individuals may include former athletes from a variety of sports but should not be limited to the recruitment of or enrich recruitment primarily with former American-rules Football players. To ensure maximal value of this project, a critical feature of this FOA includes the broad sharing of clinical, neuroimaging, physiological, and biospecimen data through the Federal Interagency TBI Research (FITBIR) database.

**Award:** Application budgets are not limited, but should rarely exceed \$1,000,000 in direct costs per year, and need to reflect the actual needs of the proposed project.

**Letter of Intent:** March 15, 2019

**Deadline:** April 15, 2019, by 5:00 PM local time of applicant organization.

No late applications will be accepted for this Funding Opportunity Announcement.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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### **Grant Program: Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship (Parent F31)**

**Agency: National Institutes of Health PA-19-195**

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PA-19-195.html>

**Brief Description:** The purpose of the Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship (Parent F31) is to enable promising predoctoral students to obtain individualized, mentored research training from outstanding faculty sponsors while conducting dissertation research. Applicants for this F31 program are expected to propose a dissertation research project and training plan in scientific health-related fields relevant to the mission of the participating Institutes and Centers. This training plan should reflect the applicant's dissertation research project, and facilitate and clearly enhance the individual's potential to develop into a productive, independent research scientist. The training plan should document the need for, and the anticipated value of, the proposed mentored research and training in relationship to the individual's research career goals. The training plan should also facilitate the fellow's transition to the next stage of his/her research career.

It is expected that the mentored research training experience will provide:

- A strong foundation in research design, methods, and analytic techniques appropriate to the proposed dissertation research;
- The enhancement of the applicant's ability to conceptualize and think through research problems with increasing independence;
- Experience conducting research using appropriate, state-of-the-art methods, as well as presenting and publishing the research findings as first author;
- The opportunity to interact with members of the scientific community at appropriate scientific meetings and workshops;
- Skills needed to transition to the next stage of the applicant's research career; and
- The opportunity to enhance the applicant's understanding of the health-related sciences and the relationship of the proposed research to health and disease.

Applicants for the F31 must be candidates for the PhD degree and have identified a dissertation research project and sponsor(s).



**Award:** Award budgets are composed of stipends, tuition and fees, and institutional allowance.

**Letter of Intent:** Not required

**Deadline:** [Standard dates](#) apply by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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**Grant Program: Shared Instrumentation Grant (SIG) Program (S10 Clinical Trial Not Allowed)**

**Agency:** National Institutes of Health PAR-19-179

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-19-179.html>

**Brief Description:** The purpose of this funding opportunity is to continue the Shared Instrumentation Grant (SIG) Program administered by ORIP. The objective of the Program is to make available to institutions expensive research instruments that can only be justified on a shared-use basis and that are needed for NIH-supported projects in basic, translational or clinical biomedical and bio-behavioral research. The SIG Program provides funds to purchase or upgrade a single item of expensive, state-of-the-art, specialized, commercially available instrument or an integrated instrumentation system. An integrated instrumentation system is one in which the components, when used in conjunction with one another, perform a function that no single component could provide. The components must be dedicated to the system and not used independently.

Types of supported instruments include, but are not limited to: X-ray diffractometers, mass spectrometers, nuclear magnetic resonance (NMR) spectrometers, DNA and protein sequencers, biosensors, electron and light microscopes, cell sorters, and biomedical imagers. Applications for "stand alone" computer systems (supercomputers, computer clusters and data storage systems) will only be considered if the system is solely dedicated to biomedical research.

All instruments, integrated systems, and computer systems must be dedicated to research only.

**Award:** Applications will be accepted that request a single, commercially available instrument or an integrated system. The minimum award is \$50,000 of direct costs. There is no upper limit on the cost of the instrument, but the maximum award is \$600,000 of direct costs. Since the cost of the various instruments will vary, it is anticipated that the amount of the award will also vary. S10 awards do not allow indirect costs.

**Letter of Intent:** Not required

**Deadline:** May 31, 2019, by 5:00 PM local time at the applicant organization. All types of applications allowed for this funding opportunity are due on this date.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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**Grant Program: Shared Instrumentation for Animal Research (SIFAR) Grant Program (S10 Clinical Trial Not Allowed)**

**Agency:** National Institutes of Health PAR-19-178

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-19-178.html>

**Brief Description:** The Shared Instrumentation for Animal Research (SIFAR) Grant Program invites groups of NIH-funded investigators engaged in biomedical research using animals to seek support for high-cost, state-of-the-art, commercially available scientific instruments. All requested instruments must be used on shared basis and enhance research that uses animals or related materials such as animal tissues, cells, or germplasm.

NIH-funded investigators use many different vertebrate and invertebrate animals in biomedical research, including worms, flies, fish, and rodents. This Funding Opportunity Announcement (FOA) supports instrumentation requests related to all animal species needed for NIH-supported biomedical research. NIH-funded investigators rely on a broad spectrum of technologies including nuclear magnetic

resonance (NMR) spectrometers, mass spectrometers, DNA and protein sequencers, biosensors, electron and confocal microscopes, cell-sorters, and biomedical imagers. This FOA supports requests for all available technologies to enhance research using animals or related biological materials such as tissue, cells, or germplasm, for the ultimate benefit of human health.

Applicants may request clusters of instruments configured as specialized integrated systems or as a series of instruments to support a specific thematic area of biomedical research using animals. An integrated instrumentation system is one in which components, when used in conjunction with one other, perform a function that no single component could provide. A series of instruments may support a specialized workflow or provide synergetic functionalities to advance a thematic area of research. Any instrument, requested as a part of a cluster or a series, must be commercially available.

**Award:** Applications will be accepted for commercially available instruments only. At least one item of the requested instrumentation must cost at least \$50,000, after all applicable discounts. No instrument in a cluster can cost less than \$20,000, after all applicable discounts. There is no upper limit on the cost of each instrument, but the maximum award is \$750,000 of direct costs. Since the cost of the various instruments will vary, it is anticipated that the amount of the award will also vary. S10 awards do not allow indirect costs.

**Letter of Intent:** Not required

**Deadline:** May 31, 2019, by 5:00 PM local time at the applicant organization. All types of applications allowed for this funding opportunity are due on this date.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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## **Grant Program: High-End Instrumentation (HEI) Grant Program (S10 Clinical Trial Not Allowed)**

**Agency: National Institutes of Health PAR-19-177**

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-19-177.html>

**Brief Description:** The purpose of this funding opportunity is to continue the High-End Instrumentation (HEI) Grant Program administered by ORIP. The objective of the Program is to make available to institutions expensive research instruments that can only be justified on a shared-use basis and that are needed for NIH-supported projects in basic, translational or clinical areas of biomedical/behavioral research. The HEI Program provides funds to purchase or upgrade a single item of expensive, specialized, commercially available instrument or an integrated instrumentation system. An integrated instrumentation system is one in which the components, when used in conjunction with one another, perform a function that no single component could provide. The components must be dedicated to the system and not used independently.

Types of supported instruments include, but are not limited to: X-ray diffractometers, mass and nuclear magnetic resonance (NMR) spectrometers, DNA and protein sequencers, biosensors, electron and light microscopes, cell sorters, and biomedical imagers. Applications for "stand alone" computer systems (supercomputers, computer clusters and data storage systems) will only be considered if the instrument is solely dedicated to the research needs of NIH-supported investigators.

To facilitate the introduction of advanced cutting-edge instrumentation technologies providing new research capabilities to the biomedical field, a risk-return trade-off is allowed when certain classes of instruments or integrated systems are requested. Accordingly, the HEI program supports the acquisition of unique instruments or integrated systems developed by reliable commercial vendors, provided the instruments or all components of integrated systems are guaranteed by the manufacturer's one-year warranty. Due to the novelty of the technologies and the uniqueness of their implementation, specialized and technologically savvy groups of investigators will be qualified to lead the adoption of such instruments for biomedical research and the development of innovative biomedical applications. Therefore, if such novel instrument is requested, the applicant should demonstrate special technical expertise, merging physical and biological sciences. For integrated systems, the applicant must provide a detailed description about how the system will be put together and about technical expertise of the

individual(s) who will be responsible for assembling of the system. The applicant must also provide a detailed description of training for the investigators listed in the application about the use of the novel technology to advance their research.

All instruments, integrated systems, and computer systems must be dedicated to research only.

**Award:** Applications will be accepted that request a single, commercially available instrument or integrated system. The minimum award is \$600,001 of direct costs. There is no upper limit on the cost of the instrument, but the maximum award is \$2,000,000 of direct costs. Since the cost of the various instruments will vary, it is anticipated that the size of the award will also vary. S10 awards do not allow indirect costs.

**Letter of Intent:** Not required

**Deadline:** May 31, 2019, by 5:00 PM local time at the applicant organization. All types of applications allowed for this funding opportunity are due on this date.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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### **Grant Program: NHLBI Emerging Investigator Award (EIA) (R35 Clinical Trial Optional)**

**Agency: National Institutes of Health RFA-HL-20-012**

**RFP Website:** <https://grants.nih.gov/grants/guide/rfa-files/RFA-HL-20-012.html>

**Brief Description:** The purpose of the NHLBI Outstanding Investigator Award (OIA) is to promote scientific productivity and innovation by providing long-term support and increased flexibility to experienced Program Directors (PDs)/Principal Investigators (PIs) who are currently PDs/PIs on at least two NHLBI R01-equivalent awards and whose outstanding record of research demonstrate their ability to make major contributions to heart, lung, blood and sleep (HLBS) research. The NHLBI OIA is intended to support a research program, rather than a research project, by providing the primary and most likely sole source of NHLBI funding on individual grant awards.

This FOA is intended for established investigators who have the potential to conduct outstanding, innovative research. For this reason, eligibility is limited. Please refer to [Section III. Eligibility Information](#) for specific details.

It is anticipated that the NHLBI OIA will:

- Provide a stable funding environment, thereby improving productivity and facilitating ambitious, creative research;
- Increase scientific innovation by enabling flexibility in pursuing new research directions as they arise, since PDs/PIs will not be bound to specific aims proposed in advance of the studies;
- Reduce the time researchers spend writing grant applications and managing multiple grant awards, thereby allowing more time to be devoted to conducting research;
- Facilitate PDs/PIs commitment to research through increased stability of funding; and
- Enable PDs/PIs to devote more time and energy to mentoring junior scientists and providing scientific service.

An NHLBI OIA is intended to be the primary, and in most cases, sole support for all of the NHLBI-related research conducted by an investigator. Research supported through the NHLBI OIA should be related to HLB research as described within the scope of the NHLBI mission (<http://www.nhlbi.nih.gov/about/org/mission>), sleep disorders closely-coupled to HLB outcomes, or basic sleep and circadian regulation. Within these bounds, investigators will have the freedom to explore new avenues of inquiry that arise during the course of their research. Work involving the addition of human subjects, vertebrate animals, stem cells, select agents, or a new foreign component requires prior approval of NHLBI staff according to existing policies and procedures.

**Award:** Applications may request up to \$600,000 direct costs per year. Investigators are encouraged to request what is well-justified for their research program. In general, the request should be commensurate with the PD/PI's recent NHLBI support.

**Letter of Intent:** 30 days prior to the application due date

**Deadline:** March 15, 2016; February 15, 2017; February 15, 2018, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates. No late applications will be accepted for this Funding Opportunity Announcement. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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**Grant Program: Summer Research Education Experience Program (R25 Clinical Trial Not Allowed)**

**Agency:** National Institutes of Health PAR-19-164

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-19-164.html>

**Brief Description:** The NIH Research Education Program (R25) supports research educational activities that complement other formal training programs in the mission areas of the NIH Institutes and Centers. The over-arching goals of the NIH R25 program are to: (1) complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs; (2) encourage individuals from diverse backgrounds, including those from groups underrepresented in the biomedical and behavioral sciences, to pursue further studies or careers in research; (3) help recruit individuals with specific specialty or disciplinary backgrounds to research careers in biomedical, behavioral and clinical sciences; and (4) foster a better understanding of biomedical, behavioral and clinical research and its implications.

The over-arching goal of this R25 program is to support educational activities that foster a better understanding of biomedical, behavioral and clinical research and its implications. To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on:

- **Research Experiences: Create educational activities** during the summer academic break. For example, for undergraduate students: to provide hands-on exposure to research, to reinforce their intent to graduate with a science degree, and/or to prepare them for graduate school admissions and/or careers in research; for high school and college science teachers: to enhance their science teaching.
- Support for science teachers at the K-12 and college level will be limited to those programs with a clear plan for how teachers will utilize their summer experience in their teaching during the school year.
- Applications that demonstrate the potential to impact students and teachers from diverse backgrounds are particularly encouraged.
- The proposed program needs to fit with the mission of the participating IC that the application is being submitted to and should not have a general STEM focus. For the specific ICs, the following represents mission focus areas (more information can be found on the Table of IC-Specific Information and Contacts page):
- **NIAAA** broadly encourages research that focuses on the following 5 goals: (1) identifying the mechanism of; (2) improve diagnosis and tracking of; (3) develop and improve strategies to prevent; and (4) develop and improve treatments for alcohol misuse, alcohol use disorder and alcohol-related consequences; and (5) enhance the public health impact of NIAAA-supported research.
- **NIDA**. Four main goals outline the broad scope of NIDA's strategic objectives: (1) Identify the biological, environmental, behavioral, and social causes and consequences of drug use and addiction across the lifespan; (2) Develop new and improved strategies to prevent drug use and its consequences; (3) Develop new and improved treatments to help people with substance use disorders achieve and maintain a meaningful and sustained recovery; (4) Increase the public health impact of NIDA research and programs.
- **NIEHS** will support applications focusing on summer research experiences in the environmental health sciences. Applications to NIEHS should provide research

experiences that address or seek to understand how exposures to toxic environmental insults impact health, alter biologic processes, are linked to disease initiation, progression or morbidity, or activities that lead to the development of prevention and intervention strategies to reduce environmentally induced diseases.

- **NINDS.** The National Institute of Neurological Disorders and Stroke (NINDS) will support applications focusing on summer research experiences that address or seek fundamental knowledge about the brain and nervous system by supporting and conducting research on the healthy and diseased brain, spinal cord, and peripheral nerves and to use that knowledge to reduce the burden of neurological disease. NINDS will support a maximum of two awards per institution (identified by a unique DUNS number): one focused on students and one focused on science teachers.

Research education programs may complement ongoing research training and education occurring at the applicant institution, but the proposed educational experiences must be distinct from those training and education programs currently receiving Federal support. R25 programs may augment institutional research training programs (e.g., T32, T90) but cannot be used to replace or circumvent Ruth L. Kirschstein National Research Service Award (NRSA) programs.

**Award:** Although the size of award may vary with the scope of the Summer Research Program proposed, budgets cannot exceed \$100,000 direct costs per year.

**Letter of Intent:** 30 days prior to application due date

**Deadline:** [Standard dates](#) apply), by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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### **Grant Program: Bioengineering Research Grants (BRG) (R01 Clinical Trial Not Allowed)**

**Agency:** National Institutes of Health PAR-19-158

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-19-158.html>

**Brief Description:** Many major biomedical research problems are best addressed with a multidisciplinary approach that bridges the life and physical sciences. Principles and techniques in quantitative sciences such as physics, mathematics, chemistry, computer sciences, and engineering are increasingly applied to good effect in biomedical research. Bioengineering approaches integrate principles from diverse technical and biomedical fields, and the resulting multi-disciplinary research provides new understanding, innovative technologies, and new products that improve basic knowledge, human health, and quality of life. This FOA seeks to encourage collaborations of quantitative and physical scientists with biomedical researchers to catalyze the development of innovative bioengineering approaches to the solution of important problems in biomedical research, clinical investigations, and medical practice.

Significant projects may include, but are not limited to: validation and translation of promising tools for prevention, monitoring or intervention; development of quantitative, predictive models of complex biological systems; integration and optimization of technologies that significantly increase sensitivity, specificity, positive predictive value, negative predictive value, efficiency, or throughput of measurements to address unsolved biological or medical questions; or engineering and testing of delivery systems, tissues, therapeutics, implants, and prosthetics that may improve treatment and healthcare.

Innovation in this biomedical engineering FOA has a broad definition that includes development of new methods, ideas, or tools, integration of existing components into new combinations that deliver greater capabilities, new efficiencies, and/or greater effects. Overall impact of these advances may include reducing disparities in care, promoting wellness and independent living, increasing access to and utility of technologies to improve quality of life, reducing cost and complexity of procedures, and increasing throughput, sensitivity and specificity of diagnostic tests.



A project must clearly serve the mission of one or more of the NIH Institutes or Centers participating in this FOA. Investigators are encouraged to contact the designated [Scientific/Research contacts](#) for individual institute focus areas that will be supported. Applicants who seek to establish proof-of-concept are encouraged to respond to the Exploratory Bioengineering Research Grant (EBRG) FOA [<https://grants.nih.gov/grants/guide/pa-files/PA-18-286.html>]. Large team projects with a specific goal that can be addressed in 5-10 years are encouraged to respond to the Bioengineering Research Partnership (BRP) FOA [<https://grants.nih.gov/grants/guide/pa-files/PA-18-208.html>].

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

**Letter of Intent:** Not Required

**Deadline:** [Standard dates](#) apply), by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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## **Department of Transportation**

**Grant Program: Pipeline Safety Research Competitive Academic Agreement Program (CAAP)**

**Agency: Department of Transportation 693JK319NF0005**

**Website:** <https://www.fedconnect.net/FedConnect/default.htm>

**Brief Description:** The U.S. Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) hereby requests applications from non-profit institutions of higher education for CAAP funding to research innovative solutions to pipeline corrosion and other known pipeline integrity challenges.

Research Area #1: Anomaly Detection and Characterization Background: Advancements in nondestructive inspection methods have continued to increase in sophistication and capabilities, allowing for the detection of more pipeline anomalies with an array of geometries, depths, severities, and types. However, current technologies are limited in identifying interactive anomalies.

Research Area #2: Develop and Validate ILI Technologies for Circumferential Anomalies and Bending Stresses Collectively, PHMSA and industry have invested heavily in improvements to In Line Inspection (ILI) technology towards a variety of integrity threats. However, some preliminary research was funded on circumferential cracking detection and characterization cracking in dents (particularly on the pipe's bottom side) creating a driver for additional research and development. This project should develop and validate advanced ILI technology in compliance with B31G and Remaining Strength of Corroded Pipe (RSTRENG) to detect circumferential cracking and characterize its severity in dents (particularly bottom side). The project should also quantify bending stresses, including those contributions from geotechnical and environmental conditions.

Research Area #3: Unmanned Aerial Systems (UAS) to Enhance Pipeline Safety Background: Unmanned Aerial Systems (UAS), using both line of sight and beyond line of sight unmanned aerial vehicles, potentially provide the safety regulator the ability to gain visual access to areas that would otherwise be inaccessible due to rough terrain, inclement weather, or other adverse conditions. Furthermore, UAS-collected information may provide pipeline inspectors the ability to determine regulatory compliance, and enhance incident response following pipeline leaks or natural disasters.

**Awards:** Subject to the availability of funds, PHMSA anticipates awarding up to \$2,000,000 and the amount of Federal funding may not exceed \$250,000 per award.

**Proposal Deadline:** May 03, 2019

**Contact Information:** Agreement Administrator Ben Patterson [Ben.Patterson@dot.gov](mailto:Ben.Patterson@dot.gov)

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**Grant Program: FY19 High Priority Program – Innovative Technology Deployment (HP-ITD)**

**Agency: Department of Transportation DOT/Federal Motor Carrier Safety Administration FM-MHP-19-002**

**Website:** <https://www.grantsolutions.gov/gs/preaward/previewPublicAnnouncement.do?id=63372>

**Brief Description:** As the lead government agency responsible for the regulation and safety oversight of commercial motor vehicles (CMV), FMCSA awards HP-ITD funds to support innovative and impactful projects that advance its mission to reduce crashes, injuries, and fatalities involving large trucks and buses. Funding is available for the support of innovative projects that improve safety and compliance with CMV regulations, are national in scope, demonstrate new technologies, and reduce the number of CMV crashes. These activities are supported in alignment with the U.S. Department of Transportation's strategic goals of: •SAFETY: Reduce transportation-related fatalities and serious injuries across the transportation system. •INFRASTRUCTURE: Invest in infrastructure to ensure safety, mobility and accessibility and to stimulate economic growth, productivity and competitiveness for American workers and businesses. •INNOVATION: Lead in the development and deployment of innovative practices and technologies that improve the safety and performance of the Nation's transportation system. •ACCOUNTABILITY: Serve the Nation with reduced regulatory burden and greater efficiency, effectiveness and accountability.

**Awards:** Any award for funds to develop or revise an ITD PP/TLD shall not exceed \$150,000 of Federal funding.

**Proposal Deadline:** April 26, 2019

**Contact Information:** Administrative and Budgetary Requirements: 202-366-4186 Rikita Jarrett (Grants Management Office) email: [rikita.jarrett@dot.gov](mailto:rikita.jarrett@dot.gov)  
Program Requirements or Technical Assistance: Bettina Conroy 518-810-2985 email: [bettina.conroy@dot.gov](mailto:bettina.conroy@dot.gov)

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**Grant Program: Dwight David Eisenhower Transportation Fellowship Program (DDETFP) Graduate Fellowship**

**Agency: Department of Transportation 693JJ318NF5227-2019**

**Website:** <https://fhwaapps.fhwa.dot.gov/tficsp/signin.aspx>.  
<https://www.grants.gov/web/grants/search-grants.html>

**Brief Description:** The DDETFP Graduate Fellowship provides funding for students to pursue master's or doctoral degrees in transportation-related disciplines. The program objectives are: 1) to attract the Nation's brightest minds to the field of transportation; 2) to enhance the careers of transportation professionals by encouraging them to seek advanced degrees; and 3) to retain top talent in the transportation industry of the United States. The DDETFP is intended to enhance the breadth and scope of knowledge of the entire transportation community in the United States. The DDETFP Graduate Fellowship encompasses all modes of transportation.

**Awards:** Actual stipend level may vary based upon IHE formal policy and available funding.

**Proposal Deadline:** April 8, 2019

**Contact Information:** Contact the FHWA Universities and Grants Programs (U&GP) at 703-235-0538 or [transportationedu@dot.gov](mailto:transportationedu@dot.gov).

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**Department of Defense/US Army/DARPA/ONR/AFOSR**

**Grant Program: DoD Parkinson's Investigator-Initiated Research Award**

**Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-19-PRP-IIRA**

**Co-RFPs: W81XWH-19-PRP-EIRA**

**DoD Parkinson's Early Investigator Research Award**

**Website:** <https://cdmrp.army.mil/funding/prp>



**Brief Description:** The PRP IIRA supports highly rigorous, multidisciplinary, high-impact research projects that have the potential to make an important contribution to Parkinson's disease research and/or patient care. This award mechanism supports the full spectrum of research from basic science through clinical research that specifically focuses on scientific and clinical Parkinson's disease issues, which, if successfully addressed, have the potential to make a major impact in understanding, preventing, diagnosing, or treating Parkinson's disease or enhancing the wellbeing of individuals experiencing the impact of the disease.

All applications to the FY19 PRP Investigator-Initiated Research Award (IIRA) Program Announcement MUST address at least one of the following FY19 PRP Focus Areas: • Clinical and research application of digital health technology for Parkinson's disease monitoring including early identification • Mechanisms of non-motor symptoms of Parkinson's disease from basic biology to clinical application • Sleep biology in Parkinson's disease • Quantifiable gene - environment interactions and the risk of Parkinson's disease

**Awards:** The anticipated total costs budgeted for the entire period of performance for an FY19 PRP Investigator-Initiated Research Award will not exceed \$1.5M total costs for a single investigator or \$2.4M combined total costs for the Partnering PI option.

**Proposal Deadline:** Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), July 9, 2019 • Application Submission Deadline: 11:59 p.m. ET, July 24, 2019

**Contact Information:** CDMRP Help Desk Phone: 301-682-5507 Email: [help@eBRAP.org](mailto:help@eBRAP.org)

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**Grant Program: DoD Autism Idea Development Award**

**Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-19-ARP-IDA**

**Co-RFP: W81XWH-19-ARP-CTRA DoD Autism Clinical Translational Research Award**

**Website:** <https://cdmrp.army.mil/funding/arp>

**Brief Description:** The ARP Idea Development Award supports the development of innovative, high-risk/highreward research that could lead to critical discoveries or major advancements that will accelerate progress in improving outcomes for individuals with ASD. This award mechanism is designed to support innovative ideas with the potential to yield impactful data and new avenues of investigation.

The FY19 ARP Idea Development Award seeks applications from all areas of basic and preclinical research and strongly encourages applications that address the critical needs of the ASD community in one or more of the following areas: • Assessment of novel therapeutics using valid preclinical models • Environmental risk factors • Mechanisms of heterogeneous clinical expression of ASD • Mechanisms underlying conditions co-occurring with ASD (e.g., sleep disturbances, gastrointestinal issues, inflammation, aggression, depression, anxiety, attention deficit, seizures, eating disorders, pharmacologic side effects, gender dysphoria) • Factors promoting success in key transitions to independence for individuals living with ASD • Factors impacting quality of life during geographic relocation, such as military permanent change of station • Development of healthcare provider-focused training or tools to improve healthcare delivery for individuals with ASD across the life span and the continuum of care (i.e., primary care, urgent/emergent care, and disaster relief) • Improve diagnosis and access to services across the life span

**Awards:** The anticipated direct costs budgeted for the entire period of performance for an FY19 ARP Idea Development Award will not exceed \$500,000.

**Proposal Deadline:** Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), May 1, 2019 • Invitation to Submit an Application: June 10, 2019 • Application Submission Deadline: 11:59 p.m. ET, August 8, 2019

**Contact Information:** CDMRP Help Desk Phone: 301-682-5507 Email: [help@eBRAP.org](mailto:help@eBRAP.org)

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**Grant Program: Real Time Machine Learning (RTML)**

**Agency: Department of Defense DARPA - Microsystems Technology Office HR001119S0037**

**Website:**

[https://www.fbo.gov/index?s=opportunity&mode=form&id=a32e37cfad63edcba7cfd5d997422d93&tab=core&\\_cview=1](https://www.fbo.gov/index?s=opportunity&mode=form&id=a32e37cfad63edcba7cfd5d997422d93&tab=core&_cview=1)

**Brief Description:** A grand challenge in computing is the creation of a processor that can proactively interpret and learn from data in real-time, solve unfamiliar problems using what it has learned, and operate with the energy efficiency of the human brain. The National Science Foundation (NSF) and the Defense Advanced Research Projects Agency (DARPA) are teaming up through the Real-Time Machine Learning (RTML) program to develop the foundational breakthroughs in hardware and machine learning needed to build systems that respond and adapt in real time.

The Microsystems Technology Office at DARPA is soliciting innovative research proposals in the area of real time machine learning hardware. The Real Time Machine Learning program will develop machine-learning hardware generators and explore circuit architectures that can proactively interpret and learn from data, solve unfamiliar problems using what it has learned, and operate at power levels on par or better than the human brain. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems.

**Awards:** Multiple awards; Available Funding \$10,000,000

**Proposal Deadline:** Proposers Day: April 2, 2019 o FAQ Submission Deadline: 1:00 PM on April 15, 2019 o Proposal Due Date: 1:00 PM on May 1, 2019

**Contact Information:** Andreas Olofsson, Program Manager BAA Coordinator:

[HR001119S0037@darpa.mil](mailto:HR001119S0037@darpa.mil)

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**Grant Program: Science of Artificial Intelligence and Learning for Open-world Novelty (SAIL-ON)**

**Agency: Department of Defense DARPA - Defense Sciences Office HR001119S0038**

**Website:**

[https://www.fbo.gov/index?s=opportunity&mode=form&id=42d0a9427a1f878b0ce99fcaabb6c645&tab=core&\\_cview=1](https://www.fbo.gov/index?s=opportunity&mode=form&id=42d0a9427a1f878b0ce99fcaabb6c645&tab=core&_cview=1)

**Brief Description:** The Defense Sciences Office (DSO) of the Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals for new AI methodologies and techniques that support (1) the principled characterization and generation of novelty in open worlds and (2) the creation of AI systems capable of operating appropriately and effectively in open worlds. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

**Awards:** Multiple Awards

**Proposal Deadline:** Proposers Day: March 5, 2019. See Section VIII.C. o Abstract Due Date: April 2, 2019, 4:00 p.m. o FAQ Submission Deadline: April 30, 2019, 4:00 p.m. See Section VIII.A. o Full Proposal Due Date: May 10, 2019, 4:00 p.m.

**Contact Information:** Ted Senator, Program Manager, DARPA/DSO o BAA Email:

[SAILON@darpa.mil](mailto:SAILON@darpa.mil)

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**Grant Program: Air Force Fiscal Year 2020 Young Investigator Research Program (YIP)**

**Agency: Department of Defense Air Force Office of Scientific Research FOA-AFRL-AFOSR-2019-0003**

**Website:** <https://www.wpafb.af.mil/Welcome/Fact-Sheets/Display/Article/842100/afosr-funding-opportunities-special-programs/#anchor2>

**Brief Description:** The Air Force YIP supports scientists and engineers who have received Ph.D. or equivalent degrees within the last seven years and show exceptional ability and promise for conducting basic research. The objectives of this program are:

1. to foster creative basic research in science and engineering;
2. enhance early career development of outstanding young investigators;
3. and increase opportunities for the young investigator to recognize the Air Force mission and related challenges in science and engineering.

**Eligibility:** Individual awards are made to U.S. institutions of higher education, industrial laboratories, or non-profit research organizations where the principal investigator (PI) is employed on a full-time basis and holds a regular position. YIP PIs must be a U.S. citizen, national, or permanent resident. Researchers working at a Federally Funded Research and Development Center or DoD Laboratory are not eligible for this competition. Research proposals must address Research Interests of the Air Force Office of Scientific Research, FA9550-18-S-0003, found on [www.grants.gov](http://www.grants.gov).

**Awards:** Most YIP awards are funded up to \$150,000 per year for three years, for a total of \$450,000. Exceptional proposals will be considered individually for higher funding levels and/or longer duration.

**Proposal Deadline:** May 31, 2019

**Contact Information:** Ellen M. Robinson (703) 588-8527 DSN 425-8527 Email: [afosryip@us.af.mil](mailto:afosryip@us.af.mil)

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### **Grant Program: Multidisciplinary Research Program of the University Research Initiative: FY20 ARMY and FY20 AFOSR**

**Agency: Department of Defense Dept of the Army -- Materiel Command W911NF-19-S-0008**

**Air Force Office of Scientific Research FOA-AFRL-AFOSR-2019-0002**

**Website:** <https://www.arl.army.mil/www/default.cfm?page=8> for US Army Funding

<https://www.wpafb.af.mil/Welcome/Fact-Sheets/Display/Article/842111/afosr-funding-opportunities-university-research-initiative-uri/#anchor2> for AFOSR

**Brief Description:** The MURI program supports basic research in science and engineering at U.S. institutions of higher education (hereafter referred to as "universities") that is of potential interest to DoD. The program is focused on multidisciplinary research efforts where more than one traditional discipline interacts to provide rapid advances in scientific areas of interest to the DoD. 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. 050201.B). DoD's basic research program invests broadly in many specific fields to ensure that it has early cognizance of new scientific knowledge. DoD's basic research program invests broadly in many fields to ensure that it has early cognizance of new scientific knowledge.

**Awards:** Various; Available funding: \$180,000,000. It is anticipated that awards under this topic will be no more than an average of \$1.5M per year for 5 years, supporting no more than 8 funded faculty researchers. Exceptions warranted by specific proposal approaches should be discussed with the topic chief during the white paper phase of the solicitation.

**Proposal Deadline:** White Paper Inquiries and Questions 24 May 2019 (Friday) White Papers must be received no later than 03 June 2019 (Monday) at 11:59 PM Eastern Time Application Inquiries and Questions 30 August 2019 (Friday) Applications must be received no later than 13 September 2019 (Friday) at 11:59 PM Eastern Time

**Contact Information:** Kia S McCormick Procurement Analyst Phone 919-549-4281

Dr. Michael R. Berman, AFOSR, 703-696-7781, [michael.berman@us.af.mil](mailto:michael.berman@us.af.mil) Dr. Aura Gimm, AFOSR, 703-696-9542, [jung-hwa.gimm.1@us.af.mil](mailto:jung-hwa.gimm.1@us.af.mil)

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**Grant Program: Department of Defense Multidisciplinary Research Program of the University Research Initiative (ONR)**

**Agency: Department of Defense Office of Naval Research N00014-19-S-F005**

**Website:**

[https://www.fbo.gov/index?s=opportunity&mode=form&id=90876d7b71e42be9ba9a2f475bbc782d&tab=core&\\_cvview=1](https://www.fbo.gov/index?s=opportunity&mode=form&id=90876d7b71e42be9ba9a2f475bbc782d&tab=core&_cvview=1)

**Brief Description:** The MURI program supports basic research in science and engineering at U.S. institutions of higher education (hereafter referred to as "universities") that is of potential interest to DoD. The program is focused on multidisciplinary research efforts where more than one traditional discipline interacts to provide rapid advances in scientific areas of interest to the DoD. As defined in the DoD Financial Management Regulation: 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. 050201.B).

**Awards:** Various

**Proposal Deadline:** White Paper Inquiries and Questions 24 May 2019 (Friday) White Papers must be received no later than 03 June 2019 (Monday) at 11:59 PM Eastern Time Application Inquiries and Questions 30 August 2019 (Friday) Applications must be received no later than 13 September 2019 (Friday) at 11:59 PM Eastern Time

**Contact Information:** David Broadwell Grant Management Specialist Phone 703-588-2866

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**Grant Program: Department of Defense Advanced Computing Initiative (ACI) Fiscal Year 2019**

**Agency: Department of Defense Dept of the Army -- Materiel Command W911NF-19-S-0007**

**Website:** <https://www.arl.army.mil/www/default.cfm?page=8>

**Brief Description:** The ACI is a DoD-sponsored computing systems research program initiated by the NSA and the Combat Capabilities Development Command/Army Research Laboratory/ARO. It focuses on areas of strategic importance to U.S. national security policy. It seeks to increase the Department's intellectual capital in computing systems and improve its ability to address future challenges and build bridges between the Department and the computing research community. ACI brings together universities, research institutions, companies, and individual scholars and supports multidisciplinary and cross-institutional projects addressing specific topic areas determined by the Department of Defense. The ACI aims to promote research in specific areas of computing systems and to promote a candid and constructive relationship between DoD and the computing research community.

**Awards:** Various

**Proposal Deadline:** May 31, 2019

**Contact Information:** Kevin J Bassler [kevin.j.bassler.civ@mail.mil](mailto:kevin.j.bassler.civ@mail.mil)

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**Grant Program: Bioelectronics for Tissue Regeneration (BETR)**

**Agency: Department of Defense DARPA - Biological Technologies Office HR001119S0027**

**Website:**

[https://www.fbo.gov/index?s=opportunity&mode=form&id=90876d7b71e42be9ba9a2f475bbc782d&tab=core&\\_cvview=1](https://www.fbo.gov/index?s=opportunity&mode=form&id=90876d7b71e42be9ba9a2f475bbc782d&tab=core&_cvview=1)

**Brief Description:** DARPA believes that recent advances in biosensors, actuators, and artificial intelligence could be extended and integrated to dramatically improve tissue regeneration. To achieve this, the new Bioelectronics for Tissue Regeneration (BETR) program asks researchers to develop

bioelectronics that closely track the progress of the wound and then stimulate healing processes in real time to optimize tissue repair and regeneration.

**Awards:** Various

**Proposal Deadline:** April 18, 2019

**Contact Information:** BAA Coordinator [BETR@darpa.mil](mailto:BETR@darpa.mil)

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**Grant Program: Army Research Laboratory Broad Agency Announcement for Basic and Applied Scientific Research**

**Agency: Department of Defense Dept of the Army -- Materiel Command W911NF-17-S-0003**

**Also Army Research Office Broad Agency Announcement for Basic and Applied Scientific Research W911NF-17-S-0002**

**Website:**

<https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=1ff4626a4e06143fe31e4b837e890c6f>

**Brief Description:** This Broad Agency Announcement (BAA) sets forth research areas of interest of the Army Research Laboratory (ARL). This BAA is issued under FAR 6.102(d)(2), which provides for the competitive selection of basic and applied research proposals, and 10 U.S.C. 2358, 10 U.S.C. 2371, and 10 U.S.C. 2371b, which provide the authorities for issuing awards under this announcement for basic and applied research. The definitions of basic and applied research may be found at 32 CFR 22.105. Proposals submitted in response to this BAA and selected for award are considered to be the result of full and open competition and in full compliance with the provision of Public Law 98-369, "The Competition in Contracting Act of 1984" and subsequent amendments. Eligible applicants under this BAA include institutions of higher education, nonprofit organizations, state and local governments, foreign organizations, foreign public entities, and for-profit organizations (i. large and small businesses) for scientific research in mechanical sciences, mathematical sciences, electronics, computing science, physics, chemistry, life sciences, materials science, network science, and environmental sciences.

**Awards:** Various.

**Proposal Deadline:** This BAA is a continuously open announcement valid throughout the period from the date of issuance through March 31, 2022, unless announced otherwise.

**Contact Information: ANDREW L. FISKE PROCUREMENT ANALYST Phone: (919) 549-4338**

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**Grant Program: 2020 Defense University Research Instrumentation Program (DURIP)- ARMY**

**Agency: Department of Defense; Dept of the Army -- Materiel Command W911NF19S0005**

**AFOSR: FOA-AFRL-AFOSR-2019-0001 ARO: W911NF19S0005 ONR: N00014-19-S-F007**

**Website:** <https://www.arl.army.mil/www/default.cfm?page=8>

**Brief Description:** A central purpose of the DURIP is to provide equipment and instrumentation to enhance research-related education in areas of interest and priority to the DoD. Therefore, your proposal must address the impact of the equipment or instrumentation on your institution's ability to educate students through research in disciplines important to DoD missions.

DURIP funds must be used for the acquisition of major equipment or instrumentation to augment current, or develop new, research capabilities to support research in the technical areas of interest to the DoD. Your proposal may request funding for more than one item if the requested items comprise a "system" that is used for a common research purpose. Requests for computing equipment for DoD-relevant research programs are appropriate and eligible for funding.

Our areas of research interest are published at the following internet locations: ADMINISTERING AGENCY HOW TO FIND OUR RESEARCH INTERESTS: Army Research Office <http://www.aro.army.mil> Select "Broad Agency Announcements" in the "For the Researcher" section to see the most recent ARL or ARO Core Broad Agency Announcement for Basic and Applied Scientific Research. Office of Naval Research <http://www.onr.navy.mil/> Select "Contracts and Grants" and then



“Funding Opportunities” to see the Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology, BAA N00014-18-S-B001. Air Force Office of Scientific Research <http://www.wpafb.af.mil/afri/afosr/> to <https://www.grants.gov/web/grants/viewopportunity.html?oppId=305996> to view the “Research Interests of the Air Force Office of Scientific Research” BAA. The current funding opportunity number for our general research interests is FA9550-18-S-0003. You must refer to the websites cited above for detailed technical information and our technical goals.

**Awards:** Up to \$1,500,000

**Proposal Deadline:** Pre-Proposal inquiries and questions must be submitted not later than Friday, 26 April, 2019.

Proposals must be received electronically through Grants.gov by Friday, May 17, 2019 at 11:59 PM Eastern Daylight time.

**Contact Information:** Kia S McCormick Procurement Analyst Phone 919-549-4281  
[Army Point of Contact](#)

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### **Grant Program: 2019 ERDC Broad Agency Announcement**

**Agency:** Department of Defense; Engineer Research and Development Center W912HZ-19-BAA-01

**Website:** <https://www.erdcd.usace.army.mil/>

**Brief Description:** The U.S. Army Engineer Research and Development Center (ERDC) has issued a Broad Agency Announcement (BAA) for various research and development topic areas. The ERDC consists of the Coastal and Hydraulics Lab (CHL), the Geotechnical and Structures Lab (GSL), the USACE Reachback Operations Center (UROC), the Environmental Lab (EL) and the Information Technology Lab (ITL) in Vicksburg, Mississippi; the Cold Regions Research and Engineering Lab (CRREL) in Hanover, New Hampshire; the Construction Engineering Research Lab (CERL) in Champaign, Illinois; and the Geospatial Research Laboratory (GRL) in Alexandria, Virginia. The ERDC is responsible for conducting research in the broad fields of hydraulics, dredging, coastal engineering, instrumentation, oceanography, remote sensing, geotechnical engineering, earthquake engineering, soil effects, vehicle mobility, self-contained munitions, military engineering, geophysics, pavements, protective structures, aquatic plants, water quality, dredged material, treatment of hazardous waste, wetlands, physical/mechanical/chemical properties of snow and other frozen precipitation, infrastructure and environmental issues for installations, computer science, telecommunications management, energy, facilities maintenance, materials and structures, engineering processes, environmental processes, land and heritage conservation, and ecological processes.

**Awards:** Various

**Proposal Deadline:** All proposals initially submitted in response to this BAA will be considered preproposals. Should ERDC evaluation indicate a need for a full proposal, one will be requested from the offeror. Until January 31, 2020

**Contact Information:** For questions regarding proposals to CHL, GSL, EL, ITL, CRREL, and UROC submit your question to the following e-mail address: [ERDC-BAA@usace.army.mil](mailto:ERDC-BAA@usace.army.mil). You may also contact Reginald Bryant at 601-634-7166.

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### **Grant Program: Measuring Biological Aptitude**

**Agency:** Department of Defense; DARPA HR001119S0021

**Website:**

<https://www.fbo.gov/index?s=opportunity&mode=form&id=c4507cfbb9f9e355478a2394e3898015&tab=core&cview=1>

**Brief Description:** The Measuring Biological Aptitude (MBA) program aims to address the need for a more capable fighting force by improving how an individual warfighter identifies, measures, and tracks

personalized biomarkers to help achieve new levels of performance for specialized roles throughout their career. The MBA program will give warfighters the ability to understand, in real-time, the underlying biological processes that govern their own performance by elucidating the internal expression circuits (e.g., genetic, epigenetic, metabolomic, etc.) that shape military-relevant cognitive, behavioral, and physical traits. Simultaneously, the program will create new technologies for tracking these expression circuits in real time, providing instantaneous user feedback to aid the warfighter to be successful throughout training, assessment and selection, and mission execution for their desired military specialty.

**Awards:** Multiple awards are possible. The amount of resources made available to each performer under this BAA will depend on the quality of the proposals received and the availability of funds.

**Proposal Deadline:** Proposal Abstract Due Date and Time: February 28, 2019, 4:00 pm Eastern Standard Time  
o Proposal Due Date and Time: April 8, 2019, 4:00 pm Eastern Standard Time  
o BAA Closing Date: April 8, 2019  
o Proposers Day – February 12, 2019 <https://events.sa-meetings.com/MBAPD2019>

**Contact Information:** The BAA Coordinator for this effort may be reached at: [MBA@darpa.mil](mailto:MBA@darpa.mil)

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## **Department of Education**

### **Grant Program: Fulbright-Hays Group Projects Abroad (GPA) Short-Term Project**

**Agency: Department of Education CFDA Number 84.021A**

**Website:** <https://www.govinfo.gov/content/pkg/FR-2019-01-24/pdf/2019-00107.pdf>

**Brief Description:** The purpose of the Fulbright-Hays GPA Program is to promote, improve, and develop modern foreign languages and area studies at varying levels of education. The program provides opportunities for faculty, teachers, and undergraduate and graduate students to conduct individual and group projects overseas to carry out research and study in the fields of modern foreign languages and area studies. This notice relates to the approved information collection under OMB control number 1840-0792.

This competition invites applicants to submit an application to request support for either a Fulbright-Hays GPA short-term project (GPA short-term projects 84.021A) or a Fulbright-Hays GPA long-term project (GPA long-term projects 84.021B). Applicants must clearly indicate on the SF 424, Application for Federal Assistance cover sheet whether they are applying for a GPA short-term project (84.021A) or a GPA long-term project (84.021B). Additional submission details are included in the application package.

There are three types of GPA short-term projects: (1) Short-term seminar projects of four to six weeks in length designed to help integrate international studies into an institution's or school system's general curriculum by focusing on a particular aspect of area study, such as the culture of an area or country of study (34 CFR 664.11); (2) curriculum development projects of four to eight weeks in length that provide participants an opportunity to acquire resource materials for curriculum development in modern foreign language and area studies for use and dissemination in the United States (34 CFR 664.12); and (3) group research or study projects of three to twelve months in duration designed to give participants the opportunity to undertake research or study in a foreign country (34 CFR 664.13).

**Awards:** Up to \$100,000. Estimated total funding: \$1,000,000

**Proposal Deadline:** March 25, 2019; Applications available: January 24, 2019. Deadline for transmittal of applications: March 25, 2019.

**Contact Information:** Julius C Cotton ED Grants.gov FIND Systems Admin. Phone 202-245-6288  
[julius.cotton@ed.gov](mailto:julius.cotton@ed.gov)

Program Manager: Cory Neal, U.S. Department of Education, 400 Maryland Avenue SW, Room 258-42, Washington, DC 20202. Telephone: (202) 453-6137. Email: [GPA@ed.gov](mailto:GPA@ed.gov) .

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## **EPA**

**Grant Program: 16th Annual P3 Awards: A National Student Design Competition Focusing on People, Prosperity and the Planet - Safe and Sustainable Water Resources**

**EPA-G2019-P3-Q1 – Air Quality**

**EPA-G2019-P3-Q2 – Safe and Sustainable Water Resources**

**EPA-G2019-P3-Q3 – Sustainable and Healthy Communities**

**EPA-G2019-P3-Q4 – Chemical Safety**

**Agency: Environmental Protection Agency**

**Website:** <https://www.epa.gov/research-grants/16th-annual-p3-awards-national-student-design-competition-focusing-people-prosperity>

**Brief Description:** The U.S. Environmental Protection Agency (EPA) – as part of its People, Prosperity and the Planet (P3) Award Program – is seeking applications proposing to research, develop, design, and demonstrate solutions to real world challenges. The P3 competition highlights the use of scientific principles in creating innovative technology-based projects that achieve the mutual goals of improved quality of life, economic prosperity, and protection of the planet – people, prosperity, and the planet. The EPA offers the P3 competition to respond to the needs of people in the United States (U.S.)—e.g., those in small, rural, tribal, and disadvantaged communities. Please see the People, Prosperity and the Planet (P3) Student Design Competition website for more details about this program. Proposed projects must embody the P3 approach, which is that they have the intention and capability to simultaneously improve the quality of people’s lives, provide economic benefits, and protect the environment.

This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects research. Human subjects research supported by the EPA is governed by EPA Regulation 40 CFR Part 26 (Protection of Human Subjects). This includes the Common Rule at subpart A and prohibitions and additional protections for pregnant women and fetuses, nursing women, and children at subparts B, C, and D. Research meeting the regulatory definition of intentional exposure research found in subpart B is prohibited by that subpart in pregnant women, nursing women, and children. Research meeting the regulatory definition of observational research found in subparts C and D is subject to the additional protections found in those subparts for pregnant women and fetuses (subpart C) and children (subpart D). All applications must include a Human Subjects Research Statement (HSRS, as described in Section IV.C.5.b of this solicitation), and if the project involves human subjects research, it will be subject to an additional level of review prior to funding decisions being made as described in Sections V.C and V.D of this solicitation.

**Awards;** The first phase is a competition for one-year grants of up to \$25,000 to test, research, and develop innovative scientific projects or engineering designs that use the P3 approach. In the spring of 2020, the Phase I grantees awarded from this solicitation are required to present their projects/designs at the National Student Design Expo. EPA will provide teams with information about the Expo during the award year. At the end of Phase I, teams will submit a *Project Report* that will serve as an application for a Phase II grant award of up to \$100,000. The Phase II grant awards are intended to support the further development and demonstration of the projects/designs created in Phase I. The competitors for 2020 P3 Phase II grants are limited to recipients of Phase I grant awards from this solicitation.

**Submission Deadline:** December 11, 2018, 11:59:59 pm Eastern Time

**Contact Information:** Technical Contact: Angela Page (page.angelad@epa.gov), Phone: 202-564-7957; Eligibility Contact: Ron Josephson (josephson.ron@epa.gov), Phone: 202-564-7823; Electronic Submissions: Debra M. Jones (jones.debram@epa.gov), Phone: 202-564-7839

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**Department of Energy**

**Grant Program: Solar Energy Technologies Office Fiscal Year 2019 Funding Program**

**Agency: Department of Energy DE-FOA-0002064**

**Website:** <https://eere-exchange.energy.gov/Default.aspx#FoaId45eda43a-e826-4481-ae7a-cc6e8ed4fdae>

**Brief Description:** The Solar Energy Technologies Office (SETO) works across the solar energy technology spectrum with the goal of improving the affordability, reliability, and performance of solar technologies on the grid. Ensuring that more Americans can benefit from the declining costs of solar is one of SETO's primary goals, which support early-stage research, development, and demonstration of solar technologies. Achieving SETO's priorities across the solar energy technology landscape requires sustained, multifaceted innovation. With this Funding Opportunity Announcement (FOA), the office intends to fund high-impact, early-stage research in the following areas: Topic Area 1: Photovoltaics Research and Development Topic Area 2: Concentrating Solar-Thermal Power Research and Development Topic Area 3: Balance of Systems Soft Costs Reduction Topic Area 4: Innovations in Manufacturing: Hardware Incubator Topic Area 5: Advanced Solar Systems Integration Technologies. Use the links below to register for the webinars:

**[SETO FY 2019 FUNDING OPPORTUNITY - OVERVIEW](#)**

April 2, 2019 2:00 pm EST

**[Topic Area 1- PHOTOVOLTAICS](#)**

April 3, 2019 3:00 pm EST

**[Topic Area 2 - CONCENTRATING SOLAR POWER](#)**

April 4, 2019 2:00 pm EST

**[Topic Area 3 - SOFT COSTS](#)**

April 5, 2019 2:00pm EST

**[Topic Area 4 - INNOVATIONS IN MANUFACTURING](#)**

April 4, 2019 4:00 pm EST

**[Topic Area 5 - SYSTEMS INTEGRATION](#)**

April 3, 2019 2:00 pm EST

**Awards:** Various; Available Funding: \$130,000,000

**Letter of Intent Deadline:** 5/7/2019 5:00 PM ET

**Concept Paper Submission Deadline:** 5/14/2019 5:00 PM ET

**Full Application Submission Deadline:** 7/25/2019 5:00 PM ET

**Contact:** Elizabeth A. Parrish [SETO.foa@ee.doe.gov](mailto:SETO.foa@ee.doe.gov)

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**Grant Program: 2019 Wind Energy Technologies Office Funding Opportunity Announcement**

**Agency: Department of Energy DE-FOA-0002071**

**Website:** <https://eere-exchange.energy.gov/#FoaIdb3bff091-3531-4356-b234-d079118ccce3>

**Brief Description:** The Office of Energy Efficiency and Renewable Energy (EERE) is issuing, on behalf of the Wind Energy Technologies Office (WETO), a Funding Opportunity Announcement (FOA) titled "Fiscal Year (FY) 2019 Wind Energy Technologies Office Funding Opportunity Announcement."

This FOA consists of four Areas of Interest and will provide \$28.1M in federal funding for innovative wind energy technologies research and development including land-based, distributed, and offshore applications.

1) *Wind Innovations for Rural Economic Development (WIRED)*

Subtopic 1a: Fully integrated distributed wind research and development (R&D) innovations to enhance resilience and reliability

Subtopic 1b: Balance of system cost reduction through standardization

2) *Utilizing and Upgrading National-Level Facilities for Offshore Wind R&D*

Subtopic 2a: R&D utilizing existing national-level offshore wind testing facilities

Subtopic 2b: R&D requiring upgrades to existing national offshore wind testing facilities

3) *Project Development for Offshore Wind Technology Demonstrations*

4) *Tall Towers for U.S. Wind Power*

**Awards:** Various; Available Funding: \$130,000,000

**Concept Paper Submission Deadline:** 4/29/2019 5:00 PM ET

**Full Application Submission Deadline:** 6/17/2019 5:00 PM ET

**Contact:** [EERE-Exchangesupport@hq.doe.gov](mailto:EERE-Exchangesupport@hq.doe.gov)

For questions related to the EERE Exchange website.

- [FY19WETOFOA@ee.doe.gov](mailto:FY19WETOFOA@ee.doe.gov)

For questions related to this specific Funding Opportunity Announcement.

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**Grant Program: Data Science for Discovery in Chemical and Materials Sciences**

**Agency:** Department of Energy Office of Science DE-FOA-0002082

**Website:** <https://science.energy.gov/funding-opportunities/digital-datamanagement/>

**Brief Description:** The DOE SC program in Basic Energy Sciences (BES) announces its interest in receiving new applications in Data Science for Knowledge Discovery for Chemical and Materials Research with the aim of advancing the use of modern data science approaches (artificial intelligence, machine learning, graph theory, uncertainty quantification, etc.) to accelerate discovery in chemical and materials sciences. This funding opportunity is the first in this topical area sponsored by BES. The program will support Single Investigator/Small Group efforts (up to \$500,000 per year) for research with a focus on applying data science approaches and tools for experimental, theoretical/computational, or synergistic experimental/theoretical/computational research in areas supported by BES. Although the research may involve the development of new data science approaches, the focus of the effort should be on advancing understanding of fundamental properties and processes in chemical and materials systems.

**Awards: Ceiling:** \$500,000 per year; Floor: \$150,000 per year. It is anticipated that up to \$20,000,000 (approximately \$6,667,000 annually for up to 3-years) will be available under this FOA, contingent on satisfactory peer review and the availability of appropriated funds. Up to 15 awards are anticipated for Single Investigator/Small Group awards under this FOA.

**Submission Deadline:** A pre-application is required. PRE-APPLICATION DUE DATE March 8, 2019 at 5:00 PM Eastern Time ENCOURAGE/DISCOURAGE DATE April, 5, 2019

**Contact:** Dr. Raul Miranda, Basic Energy Sciences, Chemical Sciences, Geosciences, and Biosciences Division PHONE: (301)-903-8014 [Raul.Miranda@science.doe.gov](mailto:Raul.Miranda@science.doe.gov)

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**Grant Program: DE-FOA-0002021: Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0002022**

**Agency:** Department of Energy DE-FOA-0002021

**Website:** <https://eere-exchange.energy.gov/>

**Brief Description:** The Office of Energy Efficiency and Renewable Energy (EERE) intends to issue, on behalf of the Fuel Cell Technologies Office (FCTO), Funding Opportunity Announcement (FOA) DE-FOA-0002022 entitled “Fiscal Year 2019 H2@Scale Funding Opportunity Announcement.” Hydrogen is one part of DOE’s all-of-the-above energy portfolio, and can offer options for affordable and secure energy for transportation, as well as for stationary and industrial applications. The United States produces over 10 million metric tons of hydrogen per year, used primarily for petroleum refining and fertilizer production, but there are a number of opportunities to increase hydrogen generation and utilization across the country. “H2@Scale” is an initiative to enable affordable and reliable largescale hydrogen generation, transport, storage, and utilization in the United States across sectors. For example, electrolyzers can produce hydrogen by splitting water when power generation exceeds demand. This can reduce or prevent curtailment of renewables, optimize baseload (e.g., nuclear power) assets, and enable grid stability and resiliency, while also producing hydrogen as a fuel or feedstock for end users. In addition, hydrogen produced from existing baseload assets can be stored, distributed, and used as a fuel for transportation, stationary power, process or building heat, and industrial sectors (e.g. steel manufacturing), creating an



additional revenue stream for those assets. FCTO focuses on research, development, and innovation to advance hydrogen and fuel cells for transportation and diverse applications enabling energy security, resiliency, and a strong domestic economy in emerging technologies. This notice of intent (NOI) is issued so that interested parties are aware of the EERE's intention to issue this FOA in the near term. All of the information contained in this NOI is subject to change. EERE will not respond to questions concerning this NOI. Once the FOA has been released, EERE will provide an avenue for potential applicants to submit questions. EERE plans to issue the FOA in January/February of 2019 via the EERE Exchange website <https://eere-exchange.energy.gov/>. If applicants wish to receive official notifications and information from EERE regarding this FOA, they should register in EERE Exchange. When the FOA is released, applications will be accepted only through EERE Exchange.

**Awards:** TBD

**Submission Deadline:** TBD

**Contact:** [EERE-ExchangeSupport@hq.doe.gov](mailto:EERE-ExchangeSupport@hq.doe.gov)

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**Grant Program: FY 2019 Bioenergy Technologies Office (BETO) Multi-topic Request for Information (RFI)**

**Agency:** Department of Energy DE-FOA-0002020

**Website:** <https://eere-exchange.energy.gov/>

**Brief Description:** The U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE) Bioenergy Technologies Office (BETO) is requesting information on research opportunities related to outdoor algae research, biomass characteristics and feedstock performance, and renewable energy from urban and suburban wastes to help inform its research priorities and funding strategies. BETO seeks information to help inform its research priorities, as part of its annual planning process. The purpose of this RFI is to solicit feedback from industry, academia, research laboratories, government agencies, and other stakeholders to help ensure research areas are relevant, timely, appropriate for federal government funding, and aligned with Administration priorities. This is solely a request for information and not a Funding Opportunity Announcement (FOA). No funding applications are being accepted in response to this RFI. Specifically, BETO is seeking information related to the following three topic areas: 1) Outdoor Algae Research; 2) Biomass Characteristics and Feedstock Performance; and 3) Renewable Energy from Urban and Suburban Wastes. Please see the full Request for Information (RFI) DE-FOA-0002020 at <https://eere-exchange.energy.gov/>.

**Awards:** TBD

**Submission Deadline:** TBD

**Contact:** [EERE\\_Bioenergy@ee.doe.gov](mailto:EERE_Bioenergy@ee.doe.gov)

Submit RFI Responses to this Inbox

- [EEREExchangeSupport@hq.doe.gov](mailto:EEREExchangeSupport@hq.doe.gov)

For EERE Exchange questions:

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**NASA**

**Grant Program: Heliophysics Theory, Modeling, and Simulations: due dates TBD**

**Agency:** NASA NNH19ZDA001N-HTMS

**Website:** <https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7B97F8C4AD-A0D1-7593-92DD-0418FE347186%7D&path=&method=init>

**Brief Description:** The Heliophysics Theory, Modeling, Simulations (H-TMS) program is a component of the Heliophysics Research Program. Proposers interested in this program element are encouraged to see the overview of the Heliophysics Research Program in Appendix B.1 of this ROSES NRA. The H-TMS program was previously one element of the Heliophysics Grand Challenges Research (H-GCR)

program (H-GCR-TMS, last competed in ROSES-2016 as program element B.5). Before that it was called "Heliophysics Theory Program" (HTP, last competed in ROSES-2013). For simplification, this program is now referred to as the Theory, Modeling, and Simulations (TMS) element in the Heliophysics program. The former Heliophysics Theory Program provides the foundation of the TMS element. Increasingly, as computing power becomes more affordable and more available, numerical simulations and modeling become tools that can and have been used synergistically with data analyses and rigorous theory development to solve the fundamental problems of Heliophysics. They lead the way to new understanding and drive science concepts for future strategic missions. The ultimate goal of TMS investigations is to provide a complete chain of reasoning extending from the basic laws of nature to comparison with observation to the identification of future quantitative tests of the behavior of the environment. NASA acknowledges this and renames the element "Theory, Modeling, and Simulations."

**Awards:** Various

**Notice of Intent:** Not Required

**Proposal Deadline:** TBD; Program Close date: Feb 14, 2020

**Contact:** Ekaterina Verner Heliophysics Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: (202) 358-1213 Email: [ekaterina.m.verner@nasa.gov](mailto:ekaterina.m.verner@nasa.gov)

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**Grant Program: Astrophysics Research and Analysis: due dates TBD**

**Agency:** NASA NNH19ZDA001N-APRA

**Website:** <https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7B90F8A275-496D-A0FA-82A0-0BF6E9ABBA67%7D&path=&method=init>

**Brief Description:** The Astrophysics Research and Analysis Program (APRA) program solicits basic research proposals for investigations that are relevant to NASA's programs in astronomy and astrophysics and includes research over the entire range of photons, gravitational waves, and particle astrophysics. Awards may be for up to four years' duration (up to five years for suborbital investigations), but shorter-term proposals are typical; four-year or five-year proposals must be well justified. Proposals for suborbital investigations are particularly encouraged. APRA investigations may advance technologies anywhere along the full line of readiness levels, from Technology Readiness Level (TRL) 1 through TRL 9. The emphasis of this program element is on technologies and investigations that advance NASA astrophysics missions and goals.

**Awards:** Various

**Notice of Intent:** Not Required

**Proposal Deadline:** TBD; Program Close date: Feb 14, 2020

**Contact:** Dominic J. Benford Astrophysics Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: (202) 358-1261 Email: [Dominic.Benford@nasa.gov](mailto:Dominic.Benford@nasa.gov)

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**Grant Program: Heliophysics Data Environment Emphasis**

**Agency:** NASA NNH19ZDA001N-HDEE

**Website:** <https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BC2FBD0C9-081B-8A0E-B883-CF137C591C5D%7D&path=&method=init>

**Brief Description:** The Heliophysics Data Environment Enhancements (HDEE) program is a component of the Heliophysics Research Program and proposers interested in this program element are encouraged to see the overview of the Heliophysics Research Program in B.1 of this ROSES NRA. The work carried out for this program should be in support of the Heliophysics strategic goals and objectives in NASA's 2018 Strategic Plan and Chapter 4.1 of the NASA 2014 Science Plan (both at <https://science.nasa.gov/about-us/science-strategy>). The recommended priorities of the Heliophysics community are also discussed in the National Research Council Decadal Strategy for Solar and Space Physics report, Solar and Space Physics: A Science for a Technological Society (<http://www.nap.edu/catalog/13060/solar-and-space-physics-a-science-for-a-technological-society>). Note

particularly the sections of the Decadal report dealing with the "DRIVE" initiative, more specifically "R" and "I," and the discussion in Appendix B. The specific context of this call is provided by the NASA Heliophysics Science Data Management Policy ([https://hpde.gsfc.nasa.gov/Heliophysics\\_Data\\_Policy\\_v1.2\\_2016Oct04.html](https://hpde.gsfc.nasa.gov/Heliophysics_Data_Policy_v1.2_2016Oct04.html)).

**Awards:** Various

**Notice of Intent:** Not Required

**Proposal Deadline:** TBD; Program Close date: Feb 14, 2020

**Contact:** Jeffrey J. E. Hayes Heliophysics Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: (202) 358-0353 Email: [jhayes@nasa.gov](mailto:jhayes@nasa.gov)

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**Grant Program: ROSES 2018: Planetary Protection Research**

**Agency:** NASA NNH18ZDA001N-PPR

**Website:** <https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7B3C61CFE1-591A-1683-ED8A-047843D6F167%7D&path=open&method=init>

**Brief Description:** Planetary Protection is the practice of protecting solar system bodies from contamination by Earth life and protecting Earth from possible life forms that may be returned from other solar system bodies. Numerous areas of research in astrobiology/exobiology are improving our understanding of the potential for survival of Earth microbes in extraterrestrial environments, relevant to preventing contamination of other bodies by Earth organisms carried on spacecraft. As we continue to bring extraterrestrial samples back to the Earth system for advanced research and analysis, there is an urgent need to understand and prevent biological contamination of the terrestrial environment. Mission-enabling and capability-driven research is required to improve NASA's understanding of the potential for both forward and backward contamination; and improve methods and technologies for accurate, efficient, and effective minimization of biological contamination for outbound spacecraft and return samples.

**Awards:** Various

**Notice of Intent:** Not Required

**Proposal Deadline:** PPR18 NOIs Due Apr 12, 2019

PPR18 Proposals Due May 10, 2019

**Contact:** Becky McCauley Rench Planetary Science Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: (202) 358- 0530 Email: [HQ-PPR@mail.nasa.gov](mailto:HQ-PPR@mail.nasa.gov)

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**National Endowment of Humanities**

**Grant Program: Research and Development Program**

**Agency:** National Endowment for the Humanities

**Website:** <https://www.neh.gov/grants/preservation/research-and-development>

**Brief Description:** The Research and Development program supports projects that address major challenges in preserving or providing access to humanities collections and resources. These challenges include the need to find better ways to preserve materials of critical importance to the nation's cultural heritage—from fragile artifacts and manuscripts to analog recordings and digital assets subject to technological obsolescence—and to develop advanced modes of organizing, searching, discovering, and using such materials.

This program recognizes that finding solutions to complex problems often requires forming interdisciplinary project teams, bringing together participants with expertise in the humanities; in preservation; and in information, computer, and natural science. The exact mix of specialists will depend on the particular nature of the project. Your project team should embody a well-defined humanities perspective that can frame your objectives and guide the project to successful completion. Such a

perspective may be provided by members of an advisory committee, consultant(s), a project co-director, or another participant.

**Awards:** Maximum award amount: Tier I provides awards up to \$75,000 Tier II provides awards up to \$350,000

**Deadlines:**

Optional Draft due: April 3, 2019

Application due: May 15, 2019

**Contact:** 202-606-8570 [preservation@neh.gov](mailto:preservation@neh.gov)

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**Grant Program: Fellowships**

**Agency: National Endowment for the Humanities**

**Website:** <https://www.neh.gov/grants/research/fellowships>

**Brief Description:** NEH Fellowships are competitive awards granted to individual scholars pursuing projects that embody exceptional research, rigorous analysis, and clear writing. Applications must clearly articulate a project's value to humanities scholars, general audiences, or both.

Fellowships provide recipients time to conduct research or to produce books, monographs, peer-reviewed articles, e-books, digital materials, translations with annotations or a critical apparatus, or critical editions resulting from previous research. Projects may be at any stage of development.

NEH invites research applications from scholars in all disciplines of the humanities, and it encourages submissions from independent scholars and junior scholars.

Applicants interested in research projects that are either born digital or require mainly digital expression and digital publication are encouraged to apply instead for [NEH-Mellon Fellowships for Digital Publication](#).

**Awards:** Maximum award amount \$5,000 per month

**Deadline:** April 10, 2019

**Contact:** Division of Research Programs National Endowment for the Humanities 400 Seventh Street, SW Washington, DC 20506 202-606-8200 [fellowships@neh.gov](mailto:fellowships@neh.gov)

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**Environment Research and Education Foundation**

**Grant Program: Research on Research on Sustainable Solid Waste Management and Recycling**

**Agency: Environment Research and Education Foundation**

**Website:** <https://erefdn.org/research-grants-projects/how-to-apply-for-grant/>

**Brief Description:** The sustainability movement has reached the business models of nearly every industry in the United States, and many companies, municipalities and states have set aggressive sustainability goals that include how waste streams are being managed. The EREF Board of Directors has set an initiative to ensure research funded reflects EREF's long-term strategic plan to address all areas of integrated solid waste management, with a strong focus towards research that increased sustainable solid waste management practices.

Pre-proposal topics must relate to sustainable solid waste management practices and pertain to the following topic areas:

1. Waste minimization
2. Recycling
3. Waste conversion to energy, biofuels, chemicals or other useful products. This includes, but is not limited to, the following technologies:
  - o Waste-to-energy
  - o Anaerobic digestion

- Composting
  - Other thermal or biological conversion technologies
4. Strategies to promote diversion to higher and better uses (e.g. organics diversion, market analysis, optimized material management, logistics, etc.)
  5. Landfilling

Upon submission, pre-proposals will be examined by a selection committee and successful pre-proposals will be invited to submit a full proposal for consideration. Full proposals will then be subjected to EREF's review process, as described later in this document.

**Proposal Deadline:** EREF has two deadlines per year for pre-proposals: December 1 and May 1

**Contact:** If interested, please send an email to Atam Dhawan ([dhawan@njit.edu](mailto:dhawan@njit.edu)).

### **Streamlyne Question of the Week**

**Question:** How do I search for a document in Streamlyne?

**Answer:** Streamlyne Research delivers multidimensional search features called Lookups. Lookups are accessible from the Menu Bar, from the Main Menu, and from within documents. (Page 19 of the New User Manual posted on the Research website <http://www.njit.edu/research/sites/research/files/StreamlyneNewUserManualCommonElements.pdf> ).

**Searching Across All Modules:** In Streamlyne Research module, please click the magnifying glass on the Menu Bar to access the Document Lookup. This will open up a Lookup form to search for any document in any Streamlyne Research module, regardless of whether the document is delivered or customized.

**Searching Within a Module:** If you would like to search for a document specific to a given module, click the hyperlinked menu option from the Main Menu. Streamlyne Research will direct you to a Lookup form that searches specifically for documents within the module selected.

**Searching at the Field Level:** Whether you are looking for a data element within a document section or trying to narrow down search criteria in a Lookup, you may search for a specific value by clicking the magnifying glass next to any field. If a magnifying glass does not appear next to a field, it means that the entries for this field are not limited to a set of configured values, and therefore cannot be accessed using the Lookup function.

More FAQs on Streamlyne: Please visit <http://www.njit.edu/research/streamlyne/>

### **Streamlyne Information**

Streamlyne User Manuals: <http://www.njit.edu/research/streamlyne/>

**Streamlyne\_NewUserManual\_CommonElements.docx :** This manual provides a reference to all the common elements of Streamlyne Research. This user manual is a good document to review each module's functionality.

**Streamlyne\_NewUserManual\_PD&PDBudget.docx:** This is a user manual on proposal and budget development in Streamlyne. The content herein explain the use and functionality of this module. This is the most useful Streamlyne document for PIs and users new to Streamlyne.

New "How to Do" videos have been posted on the research website <http://www5.njit.edu/research/streamlyne/>.



Faculty and staff having any questions on proposal submission, may contact their college representatives, and also follow up with **Justin Samolewicz, Associate Director (Pre Award)** 973-596-3145; [justin.m.samolewicz@njit.edu](mailto:justin.m.samolewicz@njit.edu); and **Eric Hetherington, Director, Sponsored Research Programs Administration** 973-596-3631; [eric.d.hetherington@njit.edu](mailto:eric.d.hetherington@njit.edu). The college representatives to help PIs on proposal submissions are

**John McCarthy**, NCE Director of Research; (973) 596-3247; [john.p.mccarthy@njit.edu](mailto:john.p.mccarthy@njit.edu)

**Cristo Leon**, CSLA Director of Research; (973) 596-6426; [cristo.e.yanezleon@njit.edu](mailto:cristo.e.yanezleon@njit.edu)

**Sean Andrews**, YWCC Director of Research; (973) 596-5352; [sean.t.andrews@njit.edu](mailto:sean.t.andrews@njit.edu)

**Iris Pantoja**, NCE, CoAD and MTSM Project Manager; 973-596-4483; [irp3@njit.edu](mailto:irp3@njit.edu)

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## **Need Information about Funding?**

### **Finding Research Opportunities and Collaborations (FROC)** **Walk-In Open-Hour Discussion with SVPR Over Tea**

Every Thursday: 3.00 PM-4.00 PM; 340 Fenster Hall

The Office of Research has started a new service to help all faculty and staff explore collaborative research opportunities and currently active RFPs (Request for Proposals) for potential proposal development and submission. Faculty and research staff members are welcome to meet with Senior Vice Provost for Research Atam Dhawan at the open-hour every Thursday from 3.00 PM to 4.00 PM to discuss research opportunities related issues including the following but not limited to:

- Research opportunities and potential collaborations
- Currently active RFPs and developing collaborative teams for proposal submission
- Proposal review criterion for specific RFP/program/agency
- Proposal concept and draft review in the context of review criterion
- Future plans for proposal development and submission
- Invention disclosures, patent applications and processing of intellectual property
- External faculty research awards including fellowships

Though *walk-ins* are welcome during the open-hour, faculty members are encouraged to email SVPR Atam Dhawan ([dhawan@njit.edu](mailto:dhawan@njit.edu)) about specific questions on research opportunities and needs to be discussed in advance for more detailed discussion.

The open-hour session with individuals or small groups of faculty and research staff members is expected to focus on finding research opportunities, developing collaborative teams, exploring the review criterion and reviewing program requirements. Specific proposal submission and grant management issues can be discussed with Office of Research staff separately.

Enjoy coffee/tea and cookies with SVPR over the discussion.

For any questions and additional information, please send an email to SVPR at [dhawan@njit.edu](mailto:dhawan@njit.edu).

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