NJIT Research Newsletter

Issue: ORN-2019-10

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/ .

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, Nanobioengieering/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.

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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

2019 Provost Undergraduate Research and Innovation (URI)

Summer Fellowship Program

Online Proposal Submission Deadline: March 29, 2019
http://centers.njit.edu/uri/programs/provost-fellowship.php

Undergraduate research provides students a unique opportunity to learn necessary and important skills to research and innovate towards taking a leadership role in the society. As a student-centered research institution, NJIT is committed to providing opportunities for research participation beginning at the undergraduate level. NJIT Provost Undergraduate Research and Innovation (URI) Summer Fellowship program provides summer stipend support to undergraduate students from all disciplines to pursue research under the guidance of a faculty advisor on a competitive basis. Eligible undergraduate students should apply online with their proposals following the instructions provided below.

The deadline for the student online application and research proposal submission **is March 29, 2019. The faculty "Letter of Support" must be submitted online** HERE **by 11:59 p.m. EST on March 29, 2019.**

ELIGIBILITY: Any current NJIT student who will be enrolled as an undergraduate in the Fall 2019 semester may apply.
AWARDS: The summer fellowship award amount is $3000. Please be aware that this award requires full-time participation by the student for a period of ten weeks during summer 2019. Students should not be engaged in outside employment or coursework during this period. All students are expected to fully participate in all aspects of the program and fill-out the time-sheet for hours of work with their respective advisors. The program runs from May 28 to August 2, 2019. Finally, all award winners are required to participate in the NJIT International Summer Undergraduate Research Symposium on August 1, 2019.
NOTES FOR FACULTY: Prospective faculty advisors are expected to write a letter of support. Letters of support must include advisor's opinion of the student and must place the proposed research project in the context of any ongoing research. The following questions should be addressed in the letter of support: Is this a new project or part of an ongoing investigation? Will this project spawn additional work that extends beyond the summer? What primary benefits will this project have for both the student and advisor?
Faculty advisors who are writing support letters for more than one student applicant must rank the proposals, indicating which projects they would most like to see funded. This process will not preclude lower ranked students from being accepted, but the advisor's insight about each student/project is useful information for the review committee to take into consideration.

RESEARCH PROPOSAL GUIDELINES FOR STUDENTS: Please adhere to the following organizational guidelines when writing your research proposal. Keep in mind that the members of the review committee are not necessarily experts in your field. Research proposals are expected to be written by the student with input from the faculty advisor.
In particular, any successful proposal will demonstrate:
- Clear statement of research problem
- Significance and originality of the approach
- Logical project design and clear methodology
- Expected outcomes and deliverables

ALL PROPOSALS MUST BEGIN WITH AN ABSTRACT OF 200 WORDS OR LESS. The recommended proposal length is **3 pages with single-space, 12-point font and 1 inch margin all sides format.** (The abstract and bibliographic references are not included in the 3-page limit.)

Cover Sheet (Online application form)

[Click here for the online application form](#) **(sign in with NJIT webmail account)**

Abstract (200 words or less): Concisely state the specific aim of your project. What are the specific questions you seek to answer? What are your specific goals and objectives for the summer? This is not included in the 3-page proposal length limit.

Background: Clearly and logically lay out the problem or question that you will attempt to answer. Provide sufficient background to help the general reader understand your project. You must describe your project in language accessible to a general audience. What is known and not known in this area of research? What outcomes do you hope to achieve? Provide citations from the relevant literature.

Significance: Explicitly and clearly explain why this problem is important. How important is it to find a solution to this problem? Who will find this work interesting? What makes this project and research novel?

Project Design: As specifically as possible, describe how you will attack your problem, using language accessible to the general audience and not going into highly technical detail. While it is true that research often goes in unforeseen directions, success in a 10-week summer project requires a very high level of focus. The clearer your goals, the more likely you are to have a productive experience.

It is important that you indicate the ways in which you as a student will make an independent or creative contribution. If your work requires compliance with published university research policies e.g., work with human subjects, animals, hazardous material, etc., please explain what steps you will take to obtain the required approval.

Expected Outcomes and Deliverable: Please explain the expected outcomes from the proposed research project. How would you demonstrate that the specific goals and objectives of the summer research are met? Provide a clear description of the deliverables.

Bibliography: Provide any relevant references and bibliography that is used in the proposal. The bibliography should be on a separate page that is not included in the 3-page proposal length limit.

Mentoring and Engaging a High School Student: Faculty advisors and undergraduate students are highly encouraged to involve and mentor a high-school student on the project during the summer project period.

For additional information, please visit the URI website http://centers.njit.edu/uri/programs/provost-fellowship.php. Any questions should be directed to Ms. Angela Retino, Undergraduate Research and Innovation Programs Coordinator at aretino@njit.edu.

Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: 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): Institutes for Data-Intensive Research in

Science and Engineering; Cyberinfrastructure for Sustained Scientific Innovation (CSSI); A Science of Science Policy Approach to Analyzing and Innovating the Biomedical Research Enterprise (SCISIPBIO); Improving Undergraduate STEM Education: Computing in Undergraduate Education (IUSE: CUE); Harnessing the Data Revolution (HDR): Institutes for Data-Intensive Research in Science and Engineering - Ideas Labs (I-DIRSE-IL)

NIH: 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: Innovative Technology Deployment (HP-ITD); Dwight David Eisenhower Transportation Fellowship Program (DDETFP) Graduate Fellowship

Department of Defense/US Army/DARPA/ONR: 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; Intelligence Community Centers for Academic Excellence (IC CAE) Program; Combat Casualty Care - Multi-Domain Lifesaving Trauma Innovations (MuLTI) Award; CDMRP PRMRP Discovery Award; CDMRP Medical Research Program Technology/Therapeutic Development Award; CDMRP Medical Research Program Focused Program Award; CDMRP Medical Research Program Investigator-Initiated Research Award

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: 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: Fellowships

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

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Recent Research Grant and Contract Awards

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

PI: Vincent Oria (PI) Ali Mili (Co-PI), Reza Curtmola (Co-PI) and Cristian Borcea (Co-PI)
Department: Computer Science
Grant/Contract Project Title: NJIT Secure Computing Initiative
Funding Agency: NSF
Duration: 01/01/16-12/31/20

PI: Chang Liu (PI), Haimin Wang (Co-PI) and Ju Jing (Co-PI)
Department: Center for Natural Resources
Grant/Contract Project Title: Study of Structural Properties of Core and Strapping Fields in Relation to Confined and Ejective Solar Eruptions
Funding Agency: NASA
Duration: 04/01/18-03/31/21

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In the News…

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

FY2020 RESEARCH, EDUCATION, AND HEALTHCARE BUDGET: Coming a month late due to the government shutdown, President Trump's latest budget request was released on March 11, 2019 for Fiscal Year 2020. The available information is still limited, according to Lewis-Burke Associates, but they have provided a snapshot of what it looks like so far. "While the request proposes cuts to many of the non-defense federal agencies of interest to the research, education, and health communities

President Trump's FY 2020 budget request sets out two main priorities—increasing military spending and building a barrier on the U.S.-Mexico border. However, these priorities set up confrontation with Congress and in particular a Democratic-controlled House. Congress is eager to negotiate a new, two year budget agreement that lifts the caps on discretionary spending for both defense and non-defense programs. The last budget agreement covered only FY 2018 and FY 2019 and without a new agreement, discretionary spending would have to be cut by $126 billion below FY 2019 enacted levels. However, this budget request will delay and complicate the ability of Congress to work with the White House on a new budget agreement. Similar to the previous two years, the budget request puts an emphasis on defense and national security at the expense of non-defense federal agencies and programs. The budget request would increase defense spending by about five percent to $750 billion, while cutting non-defense programs by five percent or about $55 billion below the FY 2019 enacted funding levels. The proposed budget technically adheres to the spending caps for FY 2020 set into law in the Budget Control Act of 2011. However, the Trump Administration added $165 billion to a war-related account, called the Overseas Contingency Operations (OCO) account, which is exempt from the spending limits to boost military spending. Democrats in Congress have called for continued parity between defense and non-defense spending and view the use of OCO as a budget gimmick. The budget request also renews the fight over a border wall by requesting $8.6 billion through the Departments of Homeland Security and Defense. In final FY 2019 funding bills passed in January, Congress rejected the President's $5.7 billion request for the border wall and the legality of the emergency declaration is still being reviewed by the courts. Download a summary and analysis by Lewis-Burke Associates (PDF).

Lasers, AI, Hypersonics Top DARPA's Small-Biz Wishlist: The defense research agency also announced plans for an accelerator to help move new tech from idea to product. **The Defense Department announced the 10 research areas** where it wants innovative small businesses to direct their efforts in 2019. The agency's research office is also standing up an in-house startup accelerator to help companies usher their tech out of the lab and into the real world.

The Defense Advanced Research Projects Agency on Friday laid out the focus areas for its Small Business Innovation Research, or SBIR, and Small Business Technology Transfer, or STTR, programs. Over the next year, DARPA will recruit companies to participate in cutting-edge national security research efforts like advancing "third wave" artificial intelligence, developing miniature satellites, building lethal lasers and upgrading the country's nuclear arsenal. "Small businesses are critical for developing technology to support national security," DARPA officials wrote in the solicitation. "The pace

of discovery in both science and technology is accelerating worldwide, resulting in new fields of study and the identification of scientific areas ripe for small business utilization through the SBIR and STTR programs."

The programs are divided into two phases, with companies first exploring the viability of their idea before building a final product. Companies that can already prove their tech is feasible are eligible to jump directly into the second phase of the program.

Teams are eligible for up to $251,250 in funding for phase one of the program, and $1.65 million in phase two, a DARPAspokesperson told Nextgov. Last year, the agency allocated roughly $101 million for the SBIR and STTR programs, they said. Ten areas are:

Artificial Intelligence
Examples: Improve algorithms, enhance data quality, optimize human-machine interactions and disrupt adversaries' efforts to corrupt systems.

Autonomy
Examples: Address the teaming of autonomous systems, enhance machine perception, improve reasoning and intelligence, build trust between humans and autonomous systems.

Communications
Examples: Address high-performance, low power embedded processing and develop algorithms for resource allocation, self-configuring and self-healing networks.

Cyber
Examples: Fix behavioral issues, develop self-securing networks and create strategies to assess cyber effects and consequences.

Directed Energy (read: lasers)
Examples: Address power scaling, jitter reduction, laser size and weight, adaptive optics, beam propagation and target tracking.

Hypersonics
Examples: Create high-temperature materials, hypersonic vehicle manufacturing, air-breathing propulsion, and hypersonic guidance and control systems.

Microelectronics
Examples: Develop economically competitive domestic manufacturing capabilities, improve radiation hardening, and develop radio frequency technologies for special applications in nuclear, space and electronic warfare.

Quantum Sciences
Examples: Create quantum clocks and sensors, quantum communications technologies and develop enabling technologies for quantum computing in the areas of cryogenics and photon detection.

Space
Examples: Develop low earth orbit nano-satellites for missile warning, intelligence, surveillance, reconnaissance, navigation and communications.

Nuclear Modernization
Examples: Modernize the nuclear triad (bombers, intercontinental ballistic missiles, and ballistic missile submarines) as well as the supporting infrastructure, including the national laboratories and the nuclear command, control, and communications network.

More information about the program RFP is posted on the website https://www.fbo.gov/index.php?s=opportunity&mode=form&id=4330a0f123d7f5f6d3246484b8b75119&tab=core&_cview=0

Water Needs Energy; Energy Needs Water: "Although the administration recently launched a broad initiative that focuses on water production and announced two funding opportunities for desalination technologies, these are only components of the overarching energy-water nexus," says Rep. Conor Lamb (D-Pa.) who chairs the Science panel's Energy subcommittee. He conducted a hearing around the Energy and Water Research Integration Act of 2019, which calls on the Department of Energy to consider water production, use, and treatment throughout its relevant R&D programs. Witnesses included Raman P.

Singh, head of the School of Materials Science and Engineering at Oklahoma State University and associate dean at OSU-Tulsa, and Michael E. Webber, a mechanical engineering professor at the University of Texas-Austin and chief science and technology officer at ENGIE, a global energy and infrastructure services firm." More information about hearing is posted on the website https://science.house.gov/sites/democrats.science.house.gov/files/documents/Dr.%20Webber%20Testimony.pdf

Engineering Research Center Planning Grants: Continuing a pilot launched last year, NSF anticipates funding 30 to 40 awards of up to $100,000 to build capacity for convergent engineering research. PI's for the planning grant, which is independent from the ERC competition, must be engineering faculty. Complete proposals are due June 3. **Learn more**.

Faculty Gender Equity: The National Science Foundation's ADVANCE program seeks to increase the participation and advancement of women in academic workplaces and the academic profession through evidence-based institutional change strategies. Letters of intent for this year's ADVANCE awards, which range from $300,000 to $3 million, are due on May 15 or November 1. **Learn more**.

K-12 STEM Education Innovation Grants: The U.S. Department of Education's **Education Innovation and Research (EIR)** program invites the STEM and computer science community to apply for funding to create, develop, implement, replicate, or take to scale entrepreneurial, evidence-based, field-initiated innovations to improve achievement and attainment for high-need students. Proposals are due April 2 at 4:30 p.m. ET. The program also seeks volunteers to serve as peer reviewers.

POWER UP: The Department of Energy has up to $51.5 million for research of "technologies for trucks, off-road vehicles, and the fuels that power them." Funded through the U.S. Department of Energy's (DOE's) Office of Energy Efficiency and Renewable Energy (EERE), this opportunity addresses priorities in gaseous fuels research, including natural gas, biopower, and hydrogen; heavy-duty freight electrification; hydrogen infrastructure and fuel cell technologies for heavy-duty applications; and energy efficient off-road vehicles. **Learn more.**

Webinar and Events

Event: Cyber-Physical Systems (CPS) Program Webinar
Sponsor: NSF
When: March 18, 2019; 12.00 PM – 1.00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=297925&org=NSF
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.

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.

To join the webinar: Please register for the webinar at:
https://nsf2.webex.com/nsf2/onstage/g.php?MTID=eeb629f965e0696fe283d7d30b171efd2
Please register by Midnight on Wednesday March 17, 2019 to ensure your registration is processed.
After your registration is accepted, you will receive an email with a URL to join the meeting. Please be sure to join a few minutes before the start of the webinar. This system does not establish a voice connection on your computer; instead, you will be prompted to call a toll-free phone number after joining. You must dial the toll-free number to hear the presentation. In the event the number of requests exceeds the capacity, some requests may have to be denied.

Event: HDR-TRIPODS Solicitation Webinar
Sponsor: NSF
When: March 18, 2019; 2.00 PM – 3.30 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=297996&org=NSF
Brief Description: *Transdisciplinary Research In Principles Of Data Science* (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 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 TRIPODS Institutes must involve significant and integral participation by researchers representing at least three of the four aforementioned communities. This webinar will present an overview of the current TRIPODS funding opportunity.

To join the webinar: Register in advance at URL: https://nsf2.webex.com/nsf2/onstage/g.php?MTID=e2dd199aa8953f3e0bdb68714c678f872
- **Audio Options:**
  - USA/Canada dial Toll-free 1-888-603-8936 or Toll: 1-517-308-9335 and enter passcode: 4183168; **or**
  - Connect to computer streaming audio at URL: http://event.on24.com/wcc/r/1955415-1/A72F0FDD83BE2BEA1E34D4CF9F718790
- **Captions:** View real-time captions at: www.fedrcc.us/ by clicking "Join Now" and entering event ID # 3944785
- **Questions:** Submit questions via WebEx Q&A for response during the live webinar.

Event: NSF Distinguished Lecture Series in Mathematical and Physical Sciences
Sponsor: NSF
When: March 25, 2019 from 2.00 PM
Website: http://sites.nationalacademies.org/deps/bmsa/deps_183972
Brief Description:
March 25, 2019, 2:00 p.m., Room E2020
"Cosmic Collisions, Gravitational Waves, and the Promise of Multi-Messenger Astrophysics"
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: 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) 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: 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

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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: sabasu@nsf.gov
- Jenshan Lin, telephone: (703) 292-7950, email: 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

- Radhakishan Baheti, Program Director, ENG/ECCS, telephone: (703) 292-8339, email: rbaheti@nsf.gov
- Wendy Nilsen, Program Director, CISE/IIS, telephone: (703) 292-2568, email: 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
- Krastan B. Blagoev, telephone: (703) 292-4666, email: kblagoev@nsf.gov
- Shubhra Gangopadhyay, telephone: (703) 292-2485, email: sgangopa@nsf.gov
- Claire A. Hemingway, telephone: (703) 292-7135, email: 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
- Sandra Cruz-Pol, telephone: (703) 292-2928, email: scruzpol@nsf.gov
- Dana L. Denick, telephone: (703) 292-8866, email: ddenick@nsf.gov

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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 [1].

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). 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:

Round I (CG and CI proposals):	
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
Round II (CI proposals only):	
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

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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

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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
- John C. Cherniavsky, telephone: (703) 292-5136, email: jchernia@nsf.gov
- David L. Haury, telephone: (703) 292-8614, email: 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

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

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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
- Radhakisan Baheti, Program Director, ENG/ECCS, telephone: (703) 292-8339, email: rbaheti@nsf.gov
- Anindya Banerjee, Program Director CISE /CCF, telephone: (703) 292-7885, email: 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.[1] 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[2] 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.govand graduate STEM opportunities at 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

- Jessie DeAro, Program Officer, telephone: (703) 292-5350, email: 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

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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
- Tracy Kimbrel, Program Director, Division of Computing and Communication Foundations, telephone: (703) 292-7924, email: tkimbrel@nsf.gov
- Anthony Kuh, Program Director, Division of Electrical, Communications, and Cyber Systems, telephone: (703) 292-2210, email: 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
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
- Nandini Kannan, telephone: (703) 292-8104, email: HDR-DIRSE@nsf.gov
- John C. Cherniavsky, telephone: (703) 292-5136, email: HDR-DIRSE@nsf.gov

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Grant Program: Cyberinfrastructure for Sustained Scientific Innovation (CSSI): Elements and Framework Implementations
Agency: National Science Foundation NSF 19-548
RFP Website: https://www.nsf.gov/pubs/2019/nsf19548/nsf19548.htm

Brief Description: The Cyberinfrastructure for Sustained Scientific Innovation (CSSI) umbrella program seeks to enable funding opportunities that are flexible and responsive to the evolving and emerging needs in cyberinfrastructure. This program continues the CSSI program by removing the distinction between *software and data* elements/framework implementations, and instead emphasizing integrated cyberinfrastructure services, quantitative metrics with targets for delivery and usage of these services, and community creation.

The CSSI umbrella program anticipates four classes of awards:

- **Elements:** These awards target small groups that will create and deploy robust services for which there is a demonstrated need that will advance one or more significant areas of science and engineering.
- **Framework Implementations**: These awards target larger, interdisciplinary teams organized around the development and application of common services aimed at solving common research problems faced by NSF researchers in one or more areas of science and engineering, resulting in a sustainable community framework providing Cyberinfrastructure (CI) services to a diverse community or communities.
- **Planning Grants for Community Cyberinfrastructure**: Planning awards focus on the establishment of long-term cyberinfrastructure services, which would serve a research community of substantial size and disciplinary breadth.
- **Community Cyberinfrastructure Implementations**: These Community Software Cyberinfrastructure Implementations focus on the establishment of long-term hubs of excellence in cyberinfrastructure services, which will serve a research community of substantial size and disciplinary breadth.

This particular CSSI solicitation requests only Elements and Framework Implementations classes of awards.

Awards: Standard Grants. Anticipated Funding: $46,000,000.

Letter of Intent: Not required

Proposal Submission Deadline: April 08, 2019; November 01, 2019

Contacts: Vipin Chaudhary, Program Director, CISE/OAC, telephone: (703) 292-2254, email: CSSIQueries@nsf.gov

- Micah Beck, Program Director, CISE/OAC, telephone: (703) 292-2932, email: CSSIQueries@nsf.gov
- Amy Walton, Program Director, CISE/OAC, telephone: (703) 292-4538, email: CSSIQueries@nsf.gov

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Grant Program: A Science of Science Policy Approach to Analyzing and Innovating the Biomedical Research Enterprise (SCISIPBIO)
Agency: National Science Foundation NSF 19-547
RFP Website: https://www.nsf.gov/pubs/2019/nsf19547/nsf19547.htm
Brief Description: NSF promotes the progress of science by maintaining the general health of research and education across all fields of science and engineering. The Social, Behavioral, and Economic Sciences (SBE) Directorate within the NSF supports basic research on people and society. The SBE sciences focus on human behavior and social organizations and how social, economic, political, cultural, and environmental forces affect the lives of people from birth to old age and how people in turn shape those forces. SBE's Science of Science and Innovation Policy (SciSIP) program supports research designed to advance the scientific basis of science and innovation policy.

The NIH is the U.S. Federal agency charged with supporting biomedical research in the U.S. The National Institute of General Medical Sciences (NIGMS) within the NIH supports basic biomedical research that increases understanding of biological processes and lays the foundation for advances in disease diagnosis, treatment, and prevention.

Both the NSF and NIH believe that there are opportunities and needs in building and supporting research projects with a focus on the scientific research enterprise. The two agencies also recognize that when programmatic goals are compatible, coordinated management and funding of a research program can have a positive synergistic effect on the level and scope of research and can leverage the investments of both agencies.

Therefore, NIGMS and SBE are partnering to enable collaboration in research between the SciSIP program and NIGMS. This partnership will result in a portfolio of high quality research to provide scientific analysis of important aspects of the biomedical research enterprise and efforts to foster a diverse, innovative, productive and efficient scientific workforce, from which future scientific leaders will emerge. Prospective investigators are strongly encouraged to discuss their proposals with the cognizant Program Officers before submission to determine project relevance to the priorities of both SBE and NIGMS. Specific questions pertaining to this solicitation can also be directed to the cognizant Program Officers.

Awards: Standard Grants. Anticipated Funding: $2,000,000.

Letter of Intent: Not required

Proposal Submission Deadline: May 08, 2019
   September 09, 2019

Contacts: Cassidy R. Sugimoto, NSF, telephone: (703) 292-7012, email: csugimot@nsf.gov
- Dorit Zuk, NIGMS, telephone: (301) 594-0943, email: zukd@mail.nih.gov

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Grant Program: Improving Undergraduate STEM Education: Computing in Undergraduate Education (IUSE: CUE)

Agency: National Science Foundation NSF 19-546

RFP Website: https://www.nsf.gov/pubs/2019/nsf19546/nsf19546.htm

Brief Description: Increasingly, undergraduate computer science (CS) programs are being called upon to prepare larger and more diverse student populations for careers in both CS and non-CS fields, including careers in scientific and non-scientific disciplines. Many of these students aim to acquire the understandings and competencies needed to learn how to use computation collaboratively across different contexts and challenging problems. However, standard CS course sequences do not always serve these students well. With this solicitation, NSF will support teams of Institutions of Higher Education (IHEs) in re-envisioning the role of computing in interdisciplinary collaboration within their institutions. In addition, NSF will encourage partnering IHEs to use this opportunity to integrate the study of ethics into their curricula, both within core CS courses and across the relevant interdisciplinary application areas.

Awards: Standard Grants. Anticipated Funding: $4,500,000.

Letter of Intent: Not required

Proposal Submission Deadline: May 09, 2019

Contacts: Janice Cuny, Program Director, CISE, telephone: (703) 292-8900, email: jcuny@nsf.gov
- Fay Cobb Payton, Program Director, CISE/CNS, telephone: (703) 292-7939, email: fpayton@nsf.gov

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Grant Program: Harnessing the Data Revolution (HDR): Institutes for Data-Intensive Research in Science and Engineering - Ideas Labs (I-DIRSE-IL)

Agency: National Science Foundation NSF 19-543

RFP Website: https://www.nsf.gov/pubs/2019/nsf19543/nsf19543.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.

This solicitation describes one or more Ideas Lab(s) on Data-Intensive Research in Science and Engineering (DIRSE) as part of the HDR Institutes activity. These Ideas Labs 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.

Awards: Standard Grants. Anticipated Funding: $20,000,000.
Preliminary Proposal Due Date(s) *(required)* **(due by 5 p.m. submitter's local time):**
   March 4, 2019 (revised date)
Proposal Submission Deadline: June 19, 2019
Contacts: Nandini Kannan, MPS/DMS, telephone: (703) 292-8104, email: nakannan@nsf.gov
- Amy Walton, CISE/OAC, telephone: (703) 292-4538, email: awalton@nsf.gov
- Eva Zanzerkia, GEO/EAR, telephone: (703) 292-4734, email: ezanzerk@nsf.gov

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National Institutes of Health

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:
   o A broad understanding across biomedical disciplines and the skills to independently acquire the knowledge needed to advance their chosen fields;
   o 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;
   o A strong foundation in scientific reasoning, rigorous research design, experimental methods, quantitative and computational approaches, and data analysis and interpretation;
   o A commitment to approaching and conducting biomedical research responsibly, ethically, and with integrity;
   o 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.

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.

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.

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.

- o **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.

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

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.

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.

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.

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.

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.

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/PAR-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.

Department of Transportation

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 Transportations 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 Nations 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
Program Requirements or Technical Assistance: Bettina Conroy 518-810-2985 email: 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.

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

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

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

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

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

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.

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

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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 Dr. Aura Gimm, AFOSR, 703-696-9542, 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&_cview=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

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

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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&_cview=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

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

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/afrl/afosr/ Navigate 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.erdc.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 . You may also contact Reginald Bryant at 601-634-7166.

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

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Grant Program: FY 2019 Intelligence Community Centers for Academic Excellence (IC CAE) Program

Agency: Department of Defense; Defense Intelligence Agency HHM402-19-FOA-399

Website: https://www.grants.gov/web/grants/search-grants.html

Brief Description: Accessing the 2019 IC CAE Funding Opportunity Announcement, HHM402-19-FOA-399. New users of www.grants.gov website need to first register and obtain a user identifier and password to use for logging into the site. Once registered and logged into the website, an applicant can click the "Current Efforts" tab and select "Intelligence Community Centers for Academic Excellence FOA # HHM402-19-FOA-399" page under the list. "Questions/Answer" section will be developed where all can view responses to all questions and comments, including those submitted by other organizations. Answers will be posted as they are developed. ALL QUESTIONS ARE TO BE SENT TO EMAIL ~FOA399@dodiis.mil. Answers will be posted on Grants.gov.

Awards: Up to $300,000; Anticipated Available Funding: $12,000,000

Proposal Deadline: February 24, 2019

Contact Information: Anthony D Hawkins Grantor Phone 202 231 3756 ~FOA399@dodiis.mil

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Grant Program: Combat Casualty Care - Multi-Domain Lifesaving Trauma Innovations (MuLTI) Award

Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-19-S-CCC1

Website: https://ebrap.org/eBRAP/public/Program.htm

Brief Description: The MuLTI Award will support the development of highly innovative materiel products and new ways, methods, or modifications to existing trauma practice (i.e., knowledge products) for future multi-domain operations (MDO) where evacuation capabilities may be significantly delayed or unavailable. Projects should consider the varied expertise levels of the medical providers and the possible diverse environmental conditions. A focus is on enhancing capabilities at the point of greatest need, including life-saving interventions to be rendered immediately post-injury, during periods of prolonged care in theater, and during transport/en route care within and from theater. Medical materiel solutions are encouraged to include characteristics relevant to military use in austere, combat environments.

Focus Area 3 – Neurotrauma: The Neurotrauma Portfolio (NTP) is focused on closing military-relevant gaps across a broad range of research areas to improve the prevention, diagnosis, management, and treatment of TBI and related sequelae from point-of-injury through recovery. The NTP's goal is to decrease morbidity and mortality from neurotrauma, mitigate secondary brain injury across all TBI severities, and advance materiel and knowledge development to expand and develop new clinical practice guidelines, care algorithms, therapies, devices, and procedures that advance the decision-making capabilities of medical personnel, enabling earlier intervention and improved outcomes. NOTE: For

studies proposing animal research, provide justification for the use of nongyrencephalic (lissencephalic) models of TBI. • Interventions to reduce the incidence and severity of secondary brain injury. • Novel intervention and stabilization (e.g., maintain glucose levels, brain oxygenation, and cerebral blood flow) approaches to moderate and severe TBI. • Simplified diagnostic capabilities (e.g., imaging) that do not require extensive interpretation by medical providers. • Novel biofluid-based TBI biomarkers. The biomarker(s) can be prognostic or diagnostic and address mild or moderate TBI severities. Biomarkers that apply to multiple TBI severities (mild or moderate) are preferred. • Development of field applicable treatments for post traumatic central nervous system (CNS) tissue preservation.

Awards: The JPC-6/CCCRP expects to allot approximately $10.7 million (M) of the FY19, $9.9M of the FY20, and $9.5M of the FY21 DHP RDT&E appropriations to fund approximately 12 to 30 FY19 DMRDP JPC-6/CCCRP MuLTI Award proposals/applications, depending on the quality and number of proposals/applications received. Funding of applications received in response to this BAA is contingent upon the availability of Federal funds for this program. The funding estimated for this BAA is approximate and subject to realignment.

Proposal Deadline: Pre-Proposal/Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), March 5, 2019 • Invitation to Submit a Proposal/Application: April 11, 2019 • Proposal/Application Submission Deadline: 11:59 p.m. ET, May 29, 2019

Contact Information: CDMRP Help Desk Phone 301-682-5507 Email: help@eBRAP.org

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Grant Program: CDMRP PRMRP Discovery Award
Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-19-PRMRP-DA
Website: https://ebrap.org/eBRAP/public/Program.htm
Brief Description: The vision of the FY19 PRMRP is to improve the health, care, and well-being of all military Service members, Veterans, and beneficiaries. The PRMRP challenges the scientific and clinical communities to address the FY19 PRMRP Topic Areas with original ideas that foster new directions along the entire spectrum of research and clinical care. The program seeks applications in laboratory, clinical, behavioral, epidemiologic, and other areas of research to advance knowledge in disease etiology, improve prevention, detection, diagnosis, treatment, and quality of life for those affected by a relevant disease or condition, and to develop and validate clinical care or public health guidelines.

Awards: The intent of the PRMRP Discovery Award is to support innovative, non-incremental, highrisk/potentially high-reward research that will provide new insights, paradigms, technologies, or applications. Studies supported by this award are expected to lay the groundwork for future avenues of scientific investigation. The proposed research project should include a well formulated, testable hypothesis based on a sound scientific rationale and study design. The anticipated direct costs budgeted for the entire period of performance for an FY19 PRMRP Discovery Award will not exceed $200,000.

Proposal Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), March 28, 2019 • Application Submission Deadline: 11:59 p.m. ET, April 11, 2019

Contact Information: CDMRP Help Desk Phone 301-682-5507 Email: help@eBRAP.org

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Grant Program: CDMRP Peer Reviewed Medical Research Program Technology/Therapeutic Development Award
Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-19-PRMRP-TTDA
Website: https://ebrap.org/eBRAP/public/Program.htm
Brief Description: The vision of the FY19 PRMRP is to improve the health, care, and well-being of all military Service members, Veterans, and beneficiaries. The PRMRP challenges the scientific and clinical communities to address at least one of the FY19 PRMRP Topic Areas with original ideas that foster new directions along the entire spectrum of research and clinical care. The program seeks applications in laboratory, clinical, behavioral, epidemiologic, and other areas of research to advance knowledge in

disease etiology, improve prevention, detection, diagnosis, treatment, and quality of life for those affected by a relevant disease or condition, and to develop and validate clinical care or public health guidelines.
Awards: The anticipated direct costs budgeted for the entire period of performance for an FY19 PRMRP TTDA award will not exceed $3M.
Anticipated available funding: $72,000,000
Proposal Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), March 14, 2019 • Invitation to Submit an Application: May 2019 • Application Submission Deadline: 11:59 p.m. ET, July 11, 2019
Contact Information: CDMRP Help Desk Phone 301-682-5507 Email: help@eBRAP.org

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Grant Program: CDMRP Peer Reviewed Medical Research Program Focused Program Award
Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-19-PRMRP-FPA
Website: https://ebrap.org/eBRAP/public/Program.htm
Brief Description: The vision of the FY19 PRMRP is to improve the health, care, and well-being of all military Service members, Veterans, and beneficiaries. The PRMRP challenges the scientific and clinical communities to address at least one of the FY19 PRMRP Topic Areas with original ideas that foster new directions along the entire spectrum of research and clinical care. The program seeks applications in laboratory, clinical, behavioral, epidemiologic, and other areas of research to advance knowledge in disease etiology, improve prevention, detection, diagnosis, treatment, and quality of life for those affected by a relevant disease or condition, and to develop and validate clinical care or public health guidelines.

The PRMRP Focused Program Award mechanism is intended to optimize research and accelerate solutions to a critical question related to at least one of the Congressionally directed FY19 PRMRP Topic Areas through a synergistic, multidisciplinary research program.
Awards: The anticipated direct costs budgeted for the entire period of performance for an FY19 PRMRP Focused Program Award will not exceed $7.2M. Refer to Section II.D.5, Funding Restrictions, for detailed funding information.
Anticipated available funding: $43,000,000
Proposal Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), March 14, 2019 • Invitation to Submit an Application: April 2019 • Application Submission Deadline: 11:59 p.m. ET, July 2, 2019
Contact Information: CDMRP Help Desk Phone 301-682-5507 Email: help@eBRAP.org

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Grant Program: CDMRP Peer Reviewed Medical Research Program Investigator-Initiated Research Award
Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-19-PRMRP-IIRA
Website: https://ebrap.org/eBRAP/public/Program.htm
Brief Description: The vision of the FY19 PRMRP is to improve the health, care, and well-being of all military Service members, Veterans, and beneficiaries. The PRMRP challenges the scientific and clinical communities to address at least one of the FY19 PRMRP Topic Areas with original ideas that foster new directions along the entire spectrum of research and clinical care. The program seeks applications in laboratory, clinical, behavioral, epidemiologic, and other areas of research to advance knowledge in disease etiology, improve prevention, detection, diagnosis, treatment, and quality of life for those affected by a relevant disease or condition, and to develop and validate clinical care or public health guidelines.

The PRMRP Investigator-Initiated Research Award (IIRA) is intended to support studies that will make an important contribution toward research and/or patient care for a disease or condition related to at least one of the FY19 PRMRP Topic Areas. The rationale for a research idea may be derived from a laboratory discovery, population-based studies, a clinician's first-hand knowledge of patients, or anecdotal data. Applications must include relevant data that support the rationale for the proposed study. These data may be unpublished or from the published literature.

Impact: The Investigator-Initiated Research Award is designed to support research with the potential to yield highly impactful data that could lead to critical discoveries or major advancements. The application must clearly demonstrate the project's potential immediate and long-range outcome(s)/product(s) (knowledge and/or materiel) and how they will impact a central critical problem or question in the field of research and/or patient care in the FY19 PRMRP Topic Area(s) addressed.

Research projects may focus on any phase of research from basic laboratory research through translational research, including preclinical studies in animal models and human subjects, as well as correlative studies associated with an existing clinical trial. Research involving human subjects and human anatomical substances is permitted; however, this award may not be used to conduct clinical trials. A clinical trial is defined as a prospective accrual of patients (human subjects) in whom an intervention (e.g., device, drug, biologic, surgical procedure, rehabilitative modality, behavioral intervention, or other) is tested for a measurable outcome with respect to safety, effectiveness, and/or efficacy. This outcome represents a direct effect on the subject of that intervention or interaction.

Awards: The anticipated direct costs budgeted for the entire period of performance for an FY19 PRMRP IIRA award will not exceed $1.2M.

Anticipated available funding: $79,600,000

Proposal Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), March 14, 2019 • Invitation to Submit an Application: May 2019 ♣ Application Submission Deadline: 11:59 p.m. ET, July 11, 2019

Contact Information: CDMRP Help Desk Phone 301-682-5507 Email: help@eBRAP.org

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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
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 .

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

Department of Energy

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

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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

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
Submit RFI Responses to this Inbox
- EEREExchangeSupport@hq.doe.gov
For EERE Exchange questions:

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

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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

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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-atechnological-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).
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

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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

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National Endowment of Humanities

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

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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
   o Composting
   o 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).

Streamlyne Question of the Week

Question: **How do I enter a cost share? For my salary? For other personnel and expenses?**
Answer: Cost Share for personnel other than faculty is very similar to release time –

- add the person under Key personnel
- select the period (start and end dates) that the staff/admin will be devoted to the project
- select percentage

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

Streamlyne Information

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

Steamlyne_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.

Steamlyne_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; and **Eric Hetherington,** Director, Sponsored Research Programs Administration 973-596-3631; 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
     Cristo Leon, CSLA Director of Research; (973) 596-6426; cristo.e.yanezleon@njit.edu
     Sean Andrews, YWCC Director of Research; (973) 596-5352; sean.t.andrews@njit.edu
     Iris Pantoja, NCE, CoAD and MTSM Project Manager; 973-596-4483; 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) 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.

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