NJIT Research Newsletter

Issue: ORN-2018-19

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

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Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: Electrochemical Systems; Biosensing; Biological and Environmental Interactions of Nanoscale Materials; Environmental Engineering; Environmental Sustainability; Engineering of Biomedical Systems (EBMS); Molecular Separation; Disability and Rehabilitation Engineering (DARE); Cellular and Biochemical Engineering (CBE); Fluid Dynamics; Smart and Autonomous Systems (S&AS); NSF/FDA Scholar-in-Residence at FDA
NIH: BRAIN Initiative: Exploratory Team-Research BRAIN Circuit Programs - eTeamBCP (U01); BRAIN Initiative: Development and Validation of Novel Tools to Probe Cell-Specific and Circuit-Specific Processes in the Brain (R01); NIH Director's Pioneer Award (DP1); BRAIN Initiative: Targeted BRAIN Circuits Projects- TargetedBCP (R01)
Department of Defense/US Army/DARPA/ONR: **DARPA Biological Technologies**; **Bilateral Academic Research Initiative (BARI) Pilot Program;** U.S. Army Research Institute for the Behavioral and Social Sciences Broad Agency Announcement for Basic, Applied, and Advanced Research; DoD Peer Reviewed Medical Research Program (PRMRP) Investigator-Initiated Research Award; Computers and Humans Exploring Software Security (CHESS); Proof of Concept Commercialization Pilot Program Innovation Corps @ Department of Defense (I-Corps @ DoD); 2019 Department of Defense Multidisciplinary Research Program of the University Research Initiative (MURI); 2019 DEFENSE UNIVERSITY RESEARCH INSTRUMENTATION PROGRAM (DURIP); Air Force Fiscal Year 2019 Young Investigator Research Program (YIP)
Department of Education: Education Innovation and Research Program: Early-phase Grants
Department of Energy: Building America Industry Partnerships and Research Priorities for High Performance Housing Innovation – 2018; Solid-State Lighting Advanced Technology Research and Development

NASA: ROSES 2018: Heliophysics Space Weather Operations to Research; Early Stage Innovation (ESI); Astrophysics Data Analysis; Advanced Information Systems Technology
National Endowment of Humanities: Research and Development; Digital Humanities Advancement
National Institute for Health Care Management Foundation: Research Grants
American Diabetes Association: Pathway Program

Special Announcement

AI and the Healthcare Consumer Award

AI enabled technology that helps support individuals as they make important health decisions in their day to day lives. Submissions can include, but are not limited to, technologies that help consumers navigate the various options they have in terms of care providers, or technologies that support individuals as they manage their own health and well-being over time. This includes but is not limited to virtual assistants, chatbots, voice-enabled devices, digital platforms, and applications to support consumers as they navigate everyday healthcare decisions. Examples of these types of decisions include: choosing the right care provider, finding a local pharmacy with affordable prices, scheduling appointments, etc.

Prizes range from $5,000 for semi-finalists to $50,000 First Prize.
Phase 1 Deadline: -- June 20, 2018
Pre-register at the website: https://www.aihealthchallenge.com/aichallenge/

Pardon the Disruption Initiative

Medtronic ECT Blood Management/Testing Research is working through the innovosource Pardon the Disruption initiative to identify needs area expertise and licensable technologies, and to fund proof of concept projects at research institutions and affiliated startups. The goal is to introduce to new university-industry partnership opportunities that the group is actively exploring and investing in through external partnerships with research institutions and startups. This entire process is free and open to those at research institutions and startups, including:

• Tech transfer offices (licensable tech, start-ups)
• Corporate relations offices
• Research centers (research projects, facilities/equipment)
• Faculty experts

To get involved: Register to attend one of the 30 minute, online info sessions where we will detail the interest areas, and talk through the process.
Online info session dates all from 12-12:30PM ET US:
- Tuesday, May 29th
- Thursday, May 31st
- Wednesday, June 6th (BIO week)

Register here: http://eepurl.com/duPxqX

Recent Research Grant and Contract Awards

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

PI: Edward Dreizen (PI)
Department: Chemical and Material Engineering
Grant/Contract Project Title: Reactive Materials with Burn Rate Adjusted by Initiation Method
Funding Agency: DoD: Air Force Office for Scientific Research
Duration: 06/15/16-06/14/18

PI: Xuan Liu (PI)
Department: Electrical and Computer Engineering
Grant/Contract Project Title: Snap shot compressive optical coherence tomography for 3D imaging
Funding Agency: Nokia Bell Labs
Duration: 05/01/18-04/30/19

PI: Xiaobo Li (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: Brain Injury Pilot Projects
Funding Agency: NJ Department of Health
Duration: 07/01/17-06/30/19

PI: Namas Chandra (PI) and Maciej Skotak (Co-PI)
Department: Biomedical Engineering
Grant/Contract Project Title: Fundamental Understanding of the Mechanism of Cavitation, One of Possible Mechanisms of Blast-Induced Neurotrauma
Funding Agency: Office of Naval Research
Duration: 06/01/15-11/30/18

PI: Somenath Mitra (PI)
Department: Chemistry and Environmental Sciences
Grant/Contract Project Title: Bioactivity and Mechanistic Studies Using a Comprehensive and Well Characterized Nanotube Library
Funding Agency: NIEHS
Duration: 07/01/14-04/30/19

PI: William Marshall (PI)
Department: NJIT
Grant/Contract Project Title: Workforce Development and Science, Technology, Engineering, and Mathematics (STEM)
Funding Agency: U.S. Army (Picatinny Arsenal)
Duration: 09/22/17-03/21/19

PI: Tao Zhou (PI)
Department: Physics
Grant/Contract Project Title: A Novel Bean Steering Device
Funding Agency: US Department of Navy
Duration: 07/10/17-11/16/18

In the News…

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

DoD DURIP Program: The Defense University Research Instrumentation Program (DURIP) "ensures that the next generation of scientists and engineers are trained with cutting-edge capabilities." Understanding that there is an "additional opportunity for the Navy to facilitate research in an area of interest," the panel urges that DURIP get $10 million more.

FY 2019 Appropriations Update: House Appropriations Committee Approves Commerce, Justice, Science Appropriations Bill: On May 17, the House Appropriations Committee approved its fiscal year (FY) 2019 Commerce, Justice, Science, and Related Agencies (CJS) appropriations bill by a party line vote of 32-19. As Lewis-Burke reported on May 10, the bill would provide a total of $62.5 billion in discretionary funding for the National Science Foundation (NSF), National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), National Institute of Standards and Technology (NIST), Economic Development Administration (EDA), and Department of Justice (DOJ) among other programs. The total allocation--$2.9 billion more than the House CJS Appropriations Subcommittee received in FY 2018—would support large increases to NASA, NSF, and DOJ while also accommodating an additional $2 billion for the Census Bureau as the agency ramps up to the 2020 Census. These increases would be offset by significant reductions to NOAA and NIST and flat funding for EDA. As part of its consideration of the bill, the House Appropriations Committee released its report containing more details and direction to the agencies on CJS programs. In keeping with the previous year, the House bill would largely ignore many of the spending cuts proposed in the Administration's budget request, including Science, Technology, Engineering, and Mathematics (STEM), minorityserving, and scientific research programs at both NSF and NASA. The bill would also maintain level funding for several agencies and programs that the Administration proposed to terminate entirely including EDA, NOAA Coastal Zone Management Grants, and the Hollings Manufacturing Extension Partnership (MEP) program at NIST.

The House CJS bill would provide the National Science Foundation (NSF) with $8.17 billion, $408 million, or 5.2 percent above the FY 2018 level and $703 million above the president's FY 2019 budget request.

- **NSF** would be funded at **$8.17 billion**, $408 million above the FY 2018 omnibus level. The Research and Related Activities (R&RA) account would be funded at $6.6 billion, $317 million above the FY 2018 level while EHR would be flat funded at $902 million. The bill summary states, "These funds will foster innovation and U.S. economic competitiveness, including funding for research on advanced manufacturing, physics, mathematics, cybersecurity, neuroscience, and STEM education." Of note, the Major Research Equipment and Facilities Construction Account would be funded at $268 million, $85 million above the FY 2018 level and $173 million above the FY 2019 request. It is not yet clear how the additional funds would be allocated.
- **NASA** would receive **$21.5 billion**, an increase of $810 million or 3.9 percent above the FY 2018 enacted level and $1.6 billion or 8 percent above the Administration's FY 2019 request. Within this amount, the Science Mission Directorate would receive $6.68 billion, an increase of $459 million and 7.4 percent above FY 2018. The bill would also embrace the Administration's proposed elimination of the Space Technology Mission Directorate and

endorse the proposed restructure and reorientation of agency-wide technology activities towards solely human spaceflight endeavors.

- **NOAA** would be provided with **$5.2 billion** for FY 2019, a $751 million decrease compared to the FY 2018 enacted level of $5.9 billion. The bulk of the reduction would impact the Procurement, Acquisition and Construction (PAC) accounts. Subcommittee Democrats also expressed concern over proposed deep cuts to climate science programs within the agency.
- **NIST** would be funded at **$985 million**, a reduction of $214 million compared to the FY 2018 omnibus level. Core research activities would be funded at $720 million a slight reduction of 0.6 percent from FY 2018. The Manufacturing Extension Partnerships program would be funded at $140 million, level with FY 2018, and the Manufacturing USA program would be funded at $5 million, a reduction of $10 million from the FY 2018 level.

The Major Research Equipment and Facilities Construction (MREFC) account would be funded at $268 million, $85 million or 47 percent above the FY 2018 level and $173 million above the FY 2019 request. Unlike previous years, the Committee would support construction of three Regional Class Research Vessels, providing $127 million, $98 million over the request. The Large Synoptic Survey Telescope (LSST) would be funded at $124 million, $75 million above the request level. This level of 4 funding would cover LSST construction estimates for FY 2019, FY 2020, and part of FY 2021. The Daniel K. Inouye Solar Telescope (DKIST) would continue to receive support at the requested level.

Education and Human Resources (EHR) would be supported at $902 million, level with FY 2018 and $29 million above the FY 2019 request. Within this amount, the report would:

• Direct NSF to continue to award grants to support STEM education authorized under the STEM Education Act of 2015, including those related to developing "innovations in mentoring, training and apprenticeships." The 2015 Act authorized NSF's informal education portfolio and defined STEM to explicitly include computer science.

• Urge NSF to fund Discovery Research PreK-12 awards more equitably with respect to age distribution to allocate more funding to research focused on early childhood.

• Note the important role of Hispanic Serving Institutions and the Hispanic Serving Institutions program and direct NSF to demonstrate a $50 million investment in the program by September 30, 2019. Congress has previously provided NSF with a total of $45 million for the program over FY 2017 and FY 2018 appropriations that has not yet been awarded. NSF requested $5 million for the program in FY 2019, so the $50 million investment would be made by awarding all previous funding plus the $5 million requested for FY 2019.

• Provide no less than the FY 2018 levels for Advanced Technological Education and the NSF Innovation Corps programs; • Provide no less than $35 million for the Historically Black Colleges and Universities (HBCU) Undergraduate Program, $46 million for the Louis Stokes Alliance for Minority Participation Program, and $14 million for the Tribal Colleges and Universities Program;

• Provide $64.5 million for the Robert Noyce Teacher Scholarship Program, $3 million above the FY 2017 level and $17.5 million above the request. The FY 2018 level for this program is not yet available.

• Encourage NSF to form partnerships with HSIs and HBCUs "with respect to cybersecurity research."

NSF-AIR FORCE Collaboration: National Science Foundation Director France Córdova and Air Force Secretary Heather Wilson will sign a letter of intent next week "to create a new partnership for collaboration on scientific research to bolster national security." NSF says "The partnership will foster an increased exchange of research information, support expanded collaboration in common

research areas, and identify opportunities for complementary activities in 'research pathways' comprising basic research, applied research, and advanced technology development. The partnership will also facilitate long-term planning of each organization's research strategy, and sharing of best practices for portfolio shaping and science, technology, engineering, and mathematics (STEM) workforce development."

NIH's Neurological Disorders and Stroke (NINDS) to Limit Grants to Well-Funded Labs: The National Institutes of Health's neurological institute "plans to pare back the number of investigators it supports who have $1 million or more in NIH grants," **Science reports**. "The policy 'will allow us to fund more early stage investigators and help people who just missed the pay line [funding cutoff] and are about to drop off the radar screen,' says Robert Finkelstein, extramural research director at the $2.1 billion National Institute of Neurological Disorders and Stroke (NINDS)." More information is posted on the website http://www.sciencemag.org/news/2018/05/nih-s-neuroscience-institute-will-limit-grants-well-funded-labs

I-CORPS Expansion Clears House: The Innovators to Entrepreneurs Act, passed 379 - 16, directs the National Science Foundation to develop a course to help researchers-turned-entrepreneurs attract investors, scale up a company, and build a brand. The course is intended for those who have already participated in I-Corps and whose innovations are ready to be commercialized. It would be offered by I-Corps' regional nodes. More information about the Innovators to Entrepreneurs Act of 2018 is available on the website https://www.congress.gov/bill/115th-congress/house-bill/5086/text

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Webinar and Events

Event: Math Frontiers Monthly Webinar Series
Sponsor: National Academies
When: June 12, 2018 from 2.00 PM
Website: http://sites.nationalacademies.org/deps/bmsa/deps_183972
Brief Description: Join the National Academies of Sciences, Engineering, and Medicine for a webinar series on exciting and upcoming mathematics research across an array of topics. Webinars will take place on the **second Tuesday of each month from 2-3 p.m. ET,** with two speakers and live Q&A. See below for the list of dates and themes for each webinar. ***When registering, please make sure you select all the webinars you would like to attend.*** You will only receive reminder emails and login instructions for webinars you have registered for.
As each webinar approaches, we will post more information about the speakers on the webinar series page at nas.edu/mathfrontiers.
June 12, 2018: ***Number Theory: The Riemann Hypothesis***
Professors Ken Ono and Terence Tao will speak on the importance and recent advances on the Riemann Hypothesis, one of the most famous unsolved problems in algebra and number theory.
July 10, 2018: ***Topology***
Professors Jeffrey F. Brock and John Morgan will discuss applications of topology—the mathematical study of how object properties are impacted by deformations—to fields such as data analytics, tumor identification, and robotics.
August 14, 2018: ***Algorithms for Threat Detection***
Professor Andrea Bertozzi and others will discuss applications of mathematics to spatiotemporal data analytics as a way to discover and mitigate national security threats.

September 11, 2018: ***Mathematical Analysis***
Professor Dimitri Shlyakhtenko and others will discuss mathematical analysis—the study of functions and their limits. Application areas include computational fluid dynamics and astronomy.
October 9, 2018: ***Combinatorics***
Invited speakers will discuss the mathematical study of discrete structures and their properties focusing on some of the modern techniques in the area including the probabilistic method. Application areas include information theory, statistical physics, molecular biology and computer science.
November 13, 2018: ***Why Machine Learning Works***
Invited speakers will discuss the mathematics behind machine learning and how they enable predictive analyses.
December 11, 2018: ***Mathematics of Epidemics***
Professors Calistus Ngonghala and Folashade B. Agusto will discuss mathematical approaches to studying biology, including ecology and infectious disease.
To join the webinar: Please register at http://sites.nationalacademies.org/deps/bmsa/deps_183972

Grant Opportunities

National Science Foundation

Grant Program: Electrochemical Systems
Agency: National Science Foundation NSF PD 18-7644
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505558&org=NSF&sel_org=NSF&from=fund
Brief Description: The **Electrochemical Systems** program is part of the Chemical Process Systems cluster, which includes also 1) Catalysis; 2) Molecular Separations; and 3) Process Systems, Reaction Engineering, and Molecular Thermodynamics.

The goal of the **Electrochemical Systems** program is to support fundamental engineering research that will enable innovative processes involving electro- or photochemistry for the sustainable production of electricity, fuels, and chemicals. Processes for sustainable energy and chemical production must be scalable, environmentally benign, reduce greenhouse gas production, and utilize renewable resources. Research projects that stress fundamental understanding of phenomena that directly impact key barriers to improved system or component-level performance (e.g., energy efficiency, product yield, process intensification) are encouraged. Processes for energy storage should address fundamental research barriers for the applications of renewable electricity storage or for transport propulsion. For projects involving energy storage materials, proposals should involve hypotheses that involve device or component performance characteristics that are tied to fundamental understanding of transport, kinetics, or thermodynamics. Advanced chemistries are encouraged.

Proposed research should be inspired by the need for economic and impactful conversion processes. All proposal project descriptions should address how the proposed work, if successful, will improve process realization and economic feasibility and compare the proposed work against current state-of-the-art. Highly integrated multidisciplinary projects are encouraged.
Current topics of interest include:
Electrochemical Energy and Chemical Production Systems
Organic Photovoltaics Devices and Processing
INFORMATION COMMON TO MOST CBET PROGRAMS
Proposals should address the novelty and/or potentially transformative nature of the proposed work compared to previous work in the field. Also, it is important to address why the proposed work is

important in terms of engineering science, as well as to also project the potential impact on society and/or industry of success in the research. The novelty or potentially transformative nature of the research should be included, as a minimum, in the Project Summary of each proposal.
Faculty Early Career Development (CAREER) program proposals are strongly encouraged. Award duration is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the CAREER URL here for more information.
Proposals for Conferences, Workshops, and Supplements: PIs are strongly encouraged to discuss their requests with the Program Director before submission of the proposal.
Grants for Rapid Response Research (RAPID) and **EArly-concept Grants for Exploratory Research (EAGER)** are also considered when appropriate. Please note that proposals of these types must be discussed with the program director before submission. Further details are available in the **Proposal and Award Policies and Procedures Guide (PAPPG)** download found here. **Grant Opportunities for Academic Liaison with Industry (GOALI)** proposals that integrate fundamental research with translational results and are consistent with the application areas of interest to each program are also encouraged. Please note that GOALI proposals must be submitted during the annual unsolicited proposal window for each program. More information on GOALI can be found here.
Awards: Various
Letter of Intent: See the program information
Full Proposal Submission Deadline: October 1, 2018 - October 22, 2018
Contacts: Carole Read cread@nsf.gov (703) 292-2418

Grant Program: Biosensing
Agency: National Science Foundation NSF PD 18-7909
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505556&org=NSF&sel_org=NSF&from=fund
Brief Description: The **Biosensing** program is part of the Engineering Biology and Health cluster, which also includes 1) Biophotonics; 2) Cellular and Biochemical Engineering; 3) Disability and Rehabilitation Engineering; and 4) Engineering of Biomedical Systems.

The **Biosensing** program supports fundamental engineering research on devices and methods for measurement and quantification of biological analytes. Examples of biosensors include, but are not limited to, electrochemical/electrical biosensors, optical biosensors, plasmonic biosensors, paper-based and nanopore-based biosensors. In addition to technology development, submissions that address critical needs for biomedical research, public health, food safety, agriculture, forensic, environmental protection, and homeland security are highly encouraged. Proposals that incorporate emerging nanotechnology methods are especially encouraged.

Areas of interest include: 1) multiplex biosensing platforms that exceed the performance of current state-of-the-art devices; 2) novel transduction principles, mechanisms and sensor designs suitable for measurement in practical matrix and sample-preparation-free approaches, including error-free detection of pathogens and toxins in food matrices, waterborne pathogens, parasites, toxins, biomarkers in body fluids, neuron chemicals, and others that improve human condition; 3) biosensors that enable measurement of biomolecular interactions in their native states, transmembrane transport, intracellular transport and reactions, and other biological phenomena; 4) biosensing performance optimization for specific health applications such as point-of-care testing and personalized health monitoring; and 5) miniaturization of biosensors for lab-on-a-chip and cell/organ-on-a-chip applications to enable measurement of biological properties and functions of cell/tissues *in vitro*.

The Biosensors Program does not encourage proposals addressing surface functionalization and modulation of bio-recognition molecules, development of basic chemical mechanisms for biosensing applications, circuit design for signal processing and amplification, computational modeling, and

microfluidics for sample separation and filtration. Medical imaging-based measurements are out of the scope of the program interests. Proposals that rely heavily on descriptive approaches are given lower priority. Proposals for optimizing and/or utilizing established methods for specific applications should be directed to programs focused on the application.
Innovative ideas outside of the above specific interest areas may be considered. However, prior to submission, it is recommended that the PI contact the Program Director to avoid the proposal being returned without review.

INFORMATION COMMON TO MOST CBET PROGRAMS

Proposals should address the novelty and/or potentially transformative nature of the proposed work compared to previous work in the field. Also, it is important to address why the proposed work is important in terms of engineering science, as well as to also project the potential impact on society and/or industry of success in the research. The novelty or potentially transformative nature of the research should be included, as a minimum, in the Project Summary of each proposal.
Faculty Early Career Development (CAREER) program proposals are strongly encouraged. Award duration is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the CAREER URL here for more information.
Proposals for Conferences, Workshops, and Supplements: PIs are strongly encouraged to discuss their requests with the Program Director before submission of the proposal.
Grants for Rapid Response Research (RAPID) and **EArly-concept Grants for Exploratory Research (EAGER)** are also considered when appropriate. Please note that proposals of these types must be discussed with the program director before submission. Further details are available in the **Proposal and Award Policies and Procedures Guide (PAPPG)** download found here. **Grant Opportunities for Academic Liaison with Industry (GOALI)** proposals that integrate fundamental research with translational results and are consistent with the application areas of interest to each program are also encouraged. Please note that GOALI proposals must be submitted during the annual unsolicited proposal window for each program. More information on GOALI can be found here.
Awards: Various
Letter of Intent: See the program information
Full Proposal Submission Deadline: October 1, 2018 - October 22, 2018
Contacts: Chenzhong Lichli@nsf.gov 703-292-2857

Grant Program: Biological and Environmental Interactions of Nanoscale Materials
Agency: National Science Foundation NSF PD 19-1179
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505553&org=NSF&sel_org=NSF&from=fund
Brief Description: The **Biological and Environmental Interactions of Nanoscale Materials** program is part of the **Environmental Engineering and Sustainability** cluster, which also includes: 1) Environmental Engineering; and 2) Environmental Sustainability.
The goal of the Biological and Environmental Interactions of Nanoscale Materials program is to support research to advance fundamental and quantitative understanding of the interactions of nanomaterials and nanosystems with biological and environmental media.
Materials of interest include one- to three-dimensional nanostructures, heterogeneous nano-bio hybrid assemblies, quantum dots, and other nanoparticles. Such nanomaterials and systems frequently exhibit novel physical, chemical, photonic, and biological behavior in living systems and environmental matrices as compared to the bulk scale.
Research areas supported by the program include:

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

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

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

The duration of unsolicited awards is generally one to three years. The typical award size for the program is $130,000 per year. Proposals requesting a substantially higher amount than this, without prior consultation with the Program Director, may be returned without review.

INFORMATION COMMON TO MOST CBET PROGRAMS

Proposals should address the novelty and/or potentially transformative nature of the proposed work compared to previous work in the field. Also, it is important to address why the proposed work is important in terms of engineering science, as well as to also project the potential impact on society and/or industry of success in the research. The novelty or potentially transformative nature of the research should be included, as a minimum, in the Project Summary of each proposal.

Faculty Early Career Development (CAREER) program proposals are strongly encouraged. Award duration is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the CAREER URL here for more information.

Proposals for Conferences, Workshops, and Supplements: PIs are strongly encouraged to discuss their requests with the Program Director before submission of the proposal.

Grants for Rapid Response Research (RAPID) and **EArly-concept Grants for Exploratory Research (EAGER)** are also considered when appropriate. Please note that proposals of these types must be discussed with the program director before submission. Further details are available in the **Proposal and Award Policies and Procedures Guide (PAPPG)** download found here. **Grant Opportunities for Academic Liaison with Industry (GOALI)** proposals that integrate fundamental research with translational results and are consistent with the application areas of interest to each program are also encouraged. Please note that GOALI proposals must be submitted during the annual unsolicited proposal window for each program. More information on GOALI can be found here.

Awards: Various

Letter of Intent: See the program information

Full Proposal Submission Deadline: Anytime

Contacts: Nora F. Savage nosavage@nsf.gov (703) 292-7949
Brandi L. Schottel bschotte@nsf.gov (703) 292-4798

Grant Program: Environmental Engineering
Agency: National Science Foundation NSF PD 18-1440

RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505551&org=NSF&sel_org=NSF&from=fund
Brief Description: The **Environmental Engineering** program is part of the **Environmental Engineering and Sustainability** cluster together with 1) the Biological and Environmental Interactions of Nanoscale Materials program and 2) the Environmental Sustainability program.
Environmental engineering is an interdisciplinary field that applies chemical, biological, and physical scientific principles to protect human and ecological health.
The goal of the Environmental Engineering program is to support potentially transformative fundamental research that applies scientific and engineering principles to 1) prevent or minimize solid, liquid, and gaseous discharges of pollution to soil, water, and air; 2) mitigate the ecological and human-health impacts of such releases by smart/adaptive/reactive amendments or manipulation of the environment, and 3) remediate polluted environments through engineered chemical, biological, and/or geo-physical processes.
Integral to achieving these goals is a fundamental understanding of the transport and biogeochemical reactivity of pollutants in the environment. Therefore, research on environmental micro/biology, environmental chemistry, and environmental geophysics may be relevant providing there is a clear connection to the application of environmental engineering to protect human and ecological health.
Major areas of interest include (but are not limited to):

- **Enhancing the availability of high-quality water supplies**: Investigation of innovative biogeochemical processes that remove, biologically or chemically transform, and/or prevent the release of contaminants in surface and groundwater; innovative processes for recovery of water, nutrients, and other resources from wastewater, saline water, or brines; innovative approaches to smart and adaptive management of surface water, groundwater, and urban watersheds and storm water to maintain/improve quality and prevent downstream impacts from nutrients and other water constituents.
- **Environmental chemistry, fate, and transport of nutrients and contaminants of emerging concern in air, water, soils, and sediments**: Investigation of transport and biogeochemical reactivity in the environment; environmental forensics to identify sources and reaction pathways; field- and laboratory-scale experimental research that bridges gaps between data and predictions from molecular, continuum, and field-scale modeling.
- **Environmental engineering of the built environment**: Research to understand the biogeochemical reactivity of the built environment with the goal of enhancing and improving human and ecological health; research that will lead to new technologies to improve outdoor and indoor air quality; research to understand how drinking water and wastewater chemical characteristics and microbial community structure impact or are affected by water quality and human health; research that will lead to new technologies for waste separation and recovery to close the resource loop.

INFORMATION COMMON TO MOST CBET PROGRAMS
Proposals should address the novelty and/or potentially transformative nature of the proposed work compared to previous work in the field. Also, it is important to address why the proposed work is important in terms of engineering science, as well as to also project the potential impact on society and/or industry of success in the research. The novelty or potentially transformative nature of the research should be included, as a minimum, in the Project Summary of each proposal.
Faculty Early Career Development (CAREER) program proposals are strongly encouraged. Award duration is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the CAREER URL here for more information.
Proposals for Conferences, Workshops, and Supplements: PIs are strongly encouraged to discuss their requests with the Program Director before submission of the proposal.

Grants for Rapid Response Research (RAPID) and **EArly-concept Grants for Exploratory Research (EAGER)** are also considered when appropriate. Please note that proposals of these types must be discussed with the program director before submission. Further details are available in the **Proposal and Award Policies and Procedures Guide (PAPPG)** download found here. **Grant Opportunities for Academic Liaison with Industry (GOALI)** proposals that integrate fundamental research with translational results and are consistent with the application areas of interest to each program are also encouraged. Please note that GOALI proposals must be submitted during the annual unsolicited proposal window for each program. More information on GOALI can be found here.
Awards: Various
Letter of Intent: See the program information
Full Proposal Submission Deadline: October 1, 2018 - October 22, 2018
Contacts: Karl J. Rockne krockne@nsf.gov (703) 292-5356
Brandi L. Schottel bschotte@nsf.gov (703) 292-47982418

Grant Program: Environmental Sustainability
Agency: National Science Foundation NSF PD 18-7643
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505549&org=NSF&sel_org=NSF&from=fund
Brief Description: The **Environmental Sustainability** program is part of the **Environmental Engineering and Sustainability** cluster, which also includes 1) Environmental Engineering; and 2) Biological and Environmental Interactions of Nanoscale Materials.
The goal of the **Environmental Sustainability** program is to promote sustainable engineered systems that support human well-being and that are also compatible with sustaining natural (environmental) systems. These systems provide ecological services vital for human survival. Research efforts supported by the program typically consider long time horizons and may incorporate contributions from the social sciences and ethics. The program supports engineering research that seeks to balance society's need to provide ecological protection and maintain stable economic conditions.
There are four principal general research areas that are supported:

- **Industrial Ecology**: Topics of interest in Industrial Ecology include advancements in modeling such as life cycle assessment, materials flow analysis, input/output economic models, and novel metrics for measuring sustainable systems. Innovations in industrial ecology are encouraged.
- **Green Engineering**: Research is encouraged to advance the sustainability of manufacturing processes, green buildings, and infrastructure. Many programs in the Engineering Directorate support research in environmentally benign manufacturing or chemical processes. The Environmental Sustainability program supports research that would affect more than one chemical or manufacturing process or that takes a systems or holistic approach to green engineering for infrastructure or green buildings. Improvements in distribution and collection systems that will advance smart growth strategies and ameliorate effects of growth are research areas that are supported by Environmental Sustainability. Innovations in management of storm water, recycling and reuse of drinking water, and other green engineering techniques to support sustainability may also be fruitful areas for research. **NOTE**: Water treatment proposals are to be submitted to the CBET Environmental Engineering program (1440), NOT the Environmental Sustainability program (7643).
- **Ecological Engineering**: Topics should focus on the engineering aspects of restoring ecological function to natural systems. Engineering research in the enhancement of natural capital to foster sustainable development is encouraged.

- **Earth Systems Engineering**: Earth systems engineering considers aspects of large scale engineering research that involve mitigation of greenhouse gas emissions, adaptation to climate change, and other global scale concerns.

INFORMATION COMMON TO MOST CBET PROGRAMS

Proposals should address the novelty and/or potentially transformative nature of the proposed work compared to previous work in the field. Also, it is important to address why the proposed work is important in terms of engineering science, as well as to also project the potential impact on society and/or industry of success in the research. The novelty or potentially transformative nature of the research should be included, as a minimum, in the Project Summary of each proposal.

Faculty Early Career Development (CAREER) program proposals are strongly encouraged. Award duration is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the CAREER URL here for more information.

Proposals for Conferences, Workshops, and Supplements: PIs are strongly encouraged to discuss their requests with the Program Director before submission of the proposal.

Grants for Rapid Response Research (RAPID) and **EArly-concept Grants for Exploratory Research (EAGER)** are also considered when appropriate. Please note that proposals of these types must be discussed with the program director before submission. Further details are available in the **Proposal and Award Policies and Procedures Guide (PAPPG)** download found here. **Grant Opportunities for Academic Liaison with Industry (GOALI)** proposals that integrate fundamental research with translational results and are consistent with the application areas of interest to each program are also encouraged. Please note that GOALI proposals must be submitted during the annual unsolicited proposal window for each program. More information on GOALI can be found here.

Awards: Various

Letter of Intent: See the program information

Full Proposal Submission Deadline: October 1, 2018 - October 22, 2018

Contacts: Bruce Hamilton bhamilto@nsf.gov (703) 292 -7066
Brandi L. Schottel bschotte@nsf.gov (703) 292-4798

Grant Program: Engineering of Biomedical Systems (EBMS)
Agency: National Science Foundation NSF PD 18-5345
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505546&org=NSF&sel_org=NSF&from=fund

Brief Description: The **Engineering of Biomedical Systems (EBMS)** program is part of the Engineering Biology and Health cluster, which also includes 1) Biophotonics; 2) Biosensing; 3) Cellular and Biochemical Engineering; and 4) Disability and Rehabilitation Engineering.

The goal of the EBMS program is to provide research opportunities for creating discovery-level and transformative projects that integrate engineering and life sciences to solve biomedical problems and serve humanity in the long term. EBMS projects must be at the interface of engineering and biomedical sciences. They are expected to use an engineering framework (for example, design or modeling) that supports increased understanding of physiological or pathophysiological processes. The project must include objectives that advance both engineering and biomedical sciences.

EMBS projects should focus on high-impact, transformative methods and technologies -- especially those that potentially will have a broad impact on biomedical challenges. Projects may include: methods, models, and enabling tools applied to understand or control living systems; fundamental improvements in deriving information from cells, tissues, organs, and organ systems; or new approaches to the design of systems that include both living and non-living components for eventual medical use in the long term.

The EBMS program supports fundamental and transformative research in the following areas of biomedical engineering:

- Development of validated models (living or computational) of normal and pathological tissues and organ systems that can support improved fundamental understanding of these systems or development and testing of medical interventions,
- Design and validation of systems that integrate living and non-living components for improved understanding, diagnosis, monitoring, and treatment of disease or injury,
- Advanced biomanufacturing of three-dimensional tissues and organs, and
- Design and subsequent application of technologies and tools to investigate fundamental physiological and pathophysiological processes.

Innovative proposals outside of these specific areas of biomedical engineering may be considered. However, prior to submission, it is strongly recommended that the Principal Investigator (PI) contacts the Program Director to avoid the possibility of the proposal being returned without review. Related programs also fund biomedical engineering research, and PIs are encouraged to examine these to find the appropriate program for submission.

INFORMATION COMMON TO MOST CBET PROGRAMS

Proposals should address the novelty and/or potentially transformative nature of the proposed work compared to previous work in the field. Also, it is important to address why the proposed work is important in terms of engineering science, as well as to also project the potential impact on society and/or industry of success in the research. The novelty or potentially transformative nature of the research should be included, as a minimum, in the Project Summary of each proposal.

Faculty Early Career Development (CAREER) program proposals are strongly encouraged. Award duration is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the CAREER URL here for more information.

Proposals for Conferences, Workshops, and Supplements: PIs are strongly encouraged to discuss their requests with the Program Director before submission of the proposal.

Grants for Rapid Response Research (RAPID) and **EArly-concept Grants for Exploratory Research (EAGER)** are also considered when appropriate. Please note that proposals of these types must be discussed with the program director before submission. Further details are available in the **Proposal and Award Policies and Procedures Guide (PAPPG)** download found here. **Grant Opportunities for Academic Liaison with Industry (GOALI)** proposals that integrate fundamental research with translational results and are consistent with the application areas of interest to each program are also encouraged. Please note that GOALI proposals must be submitted during the annual unsolicited proposal window for each program. More information on GOALI can be found here.

Awards: Various

Letter of Intent: See the program information

Full Proposal Submission Deadline: October 1, 2018 - October 22, 2018

Contacts: Michele J. Grimm mgrimm@nsf.gov (703) 292-4641

Grant Program: Molecular Separations

Agency: National Science Foundation NSF PD 19-1417

RFP Website:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505559&org=NSF&sel_org=NSF&from=fund

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

The **Molecular Separations** program supports research focused on novel methods and materials for separation processes, such as those central to the chemical, biochemical, bioprocessing, materials, energy, and pharmaceutical industries. A fundamental understanding of the interfacial, transport, and thermodynamic behavior of multiphase chemical systems as well as quantitative descriptions of

processing characteristics in the process-oriented industries is critical for efficient resource management and effective environmental protection. The program encourages proposals that address long standing challenges and emerging research areas and technologies, have a high degree of interdisciplinary work coupled with the generation of fundamental knowledge, and the integration of education and research. Research topics of particular interest include fundamental, molecular-level work on:

- A molecular-level design of scalable mass separating agents (e.g., adsorbents and membranes) targeted for a specific gas, chemical, or water separation
- A molecular-level understanding of interfacial thermodynamics, fluid nanoconfinement, and/or transport within nanopores or highly engineered surfaces
- Engineering science that advances a fundamental and/or a mechanistic understanding of mass transport principles and/or design of separation processes
- Downstream processing of biologically derived chemicals for increased throughput
- Integrated design of chemical separations with other chemical conversions for process intensification
- Innovative separation mechanisms or engineering processes, including but not limited to field (flow, magnetic, electrical) induced separations, that target a significant reduction in energy and/or materials requirements in the process industries

INFORMATION COMMON TO MOST CBET PROGRAMS

Proposals should address the novelty and/or potentially transformative nature of the proposed work compared to previous work in the field. Also, it is important to address why the proposed work is important in terms of engineering science, as well as to also project the potential impact on society and/or industry of success in the research. The novelty or potentially transformative nature of the research should be included, as a minimum, in the Project Summary of each proposal.

Faculty Early Career Development (CAREER) program proposals are strongly encouraged. Award duration is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the CAREER URL here for more information.

Proposals for Conferences, Workshops, and Supplements: PIs are strongly encouraged to discuss their requests with the Program Director before submission of the proposal.

Grants for Rapid Response Research (RAPID) and **EArly-concept Grants for Exploratory Research (EAGER)** are also considered when appropriate. Please note that proposals of these types must be discussed with the program director before submission. Further details are available in the **Proposal and Award Policies and Procedures Guide (PAPPG)** download found here. **Grant Opportunities for Academic Liaison with Industry (GOALI)** proposals that integrate fundamental research with translational results and are consistent with the application areas of interest to each program are also encouraged. Please note that GOALI proposals must be submitted during the annual unsolicited proposal window for each program. More information on GOALI can be found here.

Awards: Various

Letter of Intent: See the program information

Full Proposal Submission Deadline: Anytime

Contacts: Angela Lueking alueking@nsf.gov (703) 292-2161

Grant Program: Disability and Rehabilitation Engineering (DARE)

Agency: National Science Foundation NSF PD 18-5342

RFP Website:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505557&org=NSF&sel_org=NSF&from=fund

Brief Description: The **Disability and Rehabilitation Engineering** program is part of the Engineering Biology and Health cluster, which also includes 1) Biophotonics; 2) Biosensing; 3) Cellular and Biochemical Engineering; and 4) Engineering of Biomedical Systems.

The **Disability and Rehabilitation Engineering** program supports fundamental engineering research that will improve the quality of life of persons with disabilities through: development of new technologies, devices, or software; advancement of knowledge regarding normal or pathological human motion; or understanding of injury mechanisms.
Research may be supported that is directed toward the characterization, restoration, rehabilitation, and/or substitution of human functional ability or cognition, or to the interaction between persons with disabilities and their environment. Areas of particular interest are neuroengineering and rehabilitation robotics. The program will also consider research in the areas of: new engineering approaches to understand normal or pathological motion, both as a target for rehabilitation and as a means to characterize motion related to disability or injury; or understanding injury at the tissue or system-level such that interventions may be developed to reduce the impact of trauma and subsequent disability.
Emphasis is placed on significant advancement of fundamental engineering knowledge that facilitates transformative outcomes. We discourage applications that propose incremental improvements.
Innovative proposals outside of the above specific interest areas may be considered. However, prior to submission, it is recommended that the PI contact the Program Director to avoid the possibility of the proposal being returned without review.
NSF does not support clinical trials; however, feasibility studies involving human volunteers may be supported if appropriate to the project objectives.
The duration of unsolicited awards generally is one to three years. The typical award size is approximately $100,000 per year, with allowance of up to $130,000 or $200,000 per year for multidisciplinary collaborative projects or those involving investigators from multiple institutions, respectively. Proposals requesting a substantially higher amount than this, without prior consultation with the Program Director, may be returned without review.
INFORMATION COMMON TO MOST CBET PROGRAMS
Proposals should address the novelty and/or potentially transformative nature of the proposed work compared to previous work in the field. Also, it is important to address why the proposed work is important in terms of engineering science, as well as to also project the potential impact on society and/or industry of success in the research. The novelty or potentially transformative nature of the research should be included, as a minimum, in the Project Summary of each proposal.
Faculty Early Career Development (CAREER) program proposals are strongly encouraged. Award duration is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the CAREER URL here for more information.
Proposals for Conferences, Workshops, and Supplements: PIs are strongly encouraged to discuss their requests with the Program Director before submission of the proposal.
Grants for Rapid Response Research (RAPID) and **EArly-concept Grants for Exploratory Research (EAGER)** are also considered when appropriate. Please note that proposals of these types must be discussed with the program director before submission. Further details are available in the **Proposal and Award Policies and Procedures Guide (PAPPG)** download found here. **Grant Opportunities for Academic Liaison with Industry (GOALI)** proposals that integrate fundamental research with translational results and are consistent with the application areas of interest to each program are also encouraged. Please note that GOALI proposals must be submitted during the annual unsolicited proposal window for each program. More information on GOALI can be found here.
Awards: Various
Letter of Intent: See the program information
Full Proposal Submission Deadline: October 1, 2018 - October 22, 2018
Contacts: Michele J. Grimmmgrimm@nsf.gov (703) 292-4641

Grant Program: Cellular and Biochemical Engineering (CBE)

Agency: National Science Foundation NSF PD 18-1491
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505547&org=NSF&sel_org=NSF&from=fund
Brief Description: The **Cellular and Biochemical Engineering** (CBE) program is part of the **Engineering Biology and Health** cluster, which also includes 1) Biophotonics; 2) Biosensing; 3) Disability and Rehabilitation Engineering; and 4) Engineering of Biomedical Systems.
The Cellular and Biochemical Engineering program supports fundamental engineering research that advances understanding of cellular and biomolecular processes in engineering biology. CBE-funded research eventually leads to the development of enabling technology for advanced biomanufacturing in support of the therapeutic cell, biochemical, biopharmaceutical, and biotechnology industries.
Fundamental to many research projects in this area is the understanding of how biomolecules, subcellular systems, cells, and cell populations interact in the biomanufacturing environment, and how those interactions lead to changes in structure, function, and behavior. A quantitative treatment of problems related to biological processes is considered vital to successful research projects in the CBE program.
The program encourages highly innovative and potentially transformative engineering research leading to novel bioprocessing and biomanufacturing approaches. The CBE program also encourages proposals that effectively integrate knowledge and practices from different disciplines while incorporating ongoing research into educational activities.
Major areas of interest in the program include:

- Metabolic engineering and synthetic biology for biomanufacturing, including the design of synthetic metabolic components and synthetic cells,
- Quantitative systems biotechnology,
- Cell culture technologies,
- Protein and enzyme engineering, and
- Single cell dynamics and modeling in the context of biomanufacturing.

All proposals should include a description on the potential impact of proposed research on an associated biomanufacturing process. Proposals whose core innovation involves tissue engineering or organ culture should be submitted to the **Engineering of Biomedical Systems** program (5345).
The duration of unsolicited awards is generally one to three years. The typical award size for the program is around $100,000 per year with allowance for up to $200,000 per year for collaborative projects involving multiple institutions. Proposals requesting a substantially higher amount than this, without prior consultation with the Program Director, may be returned without review.
INFORMATION COMMON TO MOST CBET PROGRAMS
Proposals should address the novelty and/or potentially transformative nature of the proposed work compared to previous work in the field. Also, it is important to address why the proposed work is important in terms of engineering science, as well as to also project the potential impact on society and/or industry of success in the research. The novelty or potentially transformative nature of the research should be included, as a minimum, in the Project Summary of each proposal.
Faculty Early Career Development (CAREER) program proposals are strongly encouraged. Award duration is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the CAREER URL here for more information.
Proposals for Conferences, Workshops, and Supplements: PIs are strongly encouraged to discuss their requests with the Program Director before submission of the proposal.
Grants for Rapid Response Research (RAPID) and **EArly-concept Grants for Exploratory Research (EAGER)** are also considered when appropriate. Please note that proposals of these types must be discussed with the program director before submission. Further details are available in the **Proposal and Award Policies and Procedures Guide (PAPPG)** download found here. **Grant Opportunities for Academic Liaison with Industry (GOALI)** proposals that integrate fundamental research with translational results and are consistent with the application areas of interest to each program are also

encouraged. Please note that GOALI proposals must be submitted during the annual unsolicited proposal window for each program. More information on GOALI can be found here.
Awards: Various
Letter of Intent: See the program information
Full Proposal Submission Deadline: October 1, 2018 - October 22, 2018
Contacts: Email Phone Room
Steven W. Peretti speretti@nsf.gov (703) 292-7029

Grant Program: Fluid Dynamics
Agency: National Science Foundation NSF PD 18-1443
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505529&org=NSF&sel_org=NSF&from=fund
Brief Description: The **Fluid Dynamics** program is part of the **Transport Phenomena** cluster, which also includes 1) Combustion and Fire Systems; 2) Particulate and Multiphase Processes; and 3) Thermal Transport Processes.

The **Fluid Dynamics** program supports fundamental research toward gaining an understanding of the physics of various fluid dynamics phenomena. Proposed research should contribute to basic scientific understanding via experiments, theoretical developments, and computational discovery.
Major areas of interest and activity in the program include:

- **Turbulence and Transition**: high Reynolds number experiments; large eddy simulation; direct numerical simulation; transition to turbulence; 3-D boundary layers; separated flows; multi-phase turbulent flows; flow control and drag reduction.
- **Bio-Fluid Physics**: bio-inspired flows; biological flows with emphasis on flow physics.
- **Non-Newtonian Fluid Mechanics:** viscoelastic flows; solutions of macro-molecules.
- **Micro- and Nano-fluidics**: micro-and nano-scale flow physics.
- **Wind and Ocean Energy Harvesting**: focused on fundamental fluid dynamics associated with renewal energy.
- **Fluid-Structure Interactions:** This is a NSF-AFOSR (Air Force Office of Scientific Research) joint funding area focused on theory, modeling and/or experiments for hypersonics applications. A small number of awards (depending on availability of funds and proposal quality) will be provided, and will be jointly reviewed by NSF and AFOSR using the NSF panel format. Actual funding format and agency split for an award will be determined after the proposal selection process. The AFOSR program that participates in this initiative is the Program on High Speed Aerodynamics (Program Officer: Dr. Ivett Leyva).

INFORMATION COMMON TO MOST CBET PROGRAMS
Proposals should address the novelty and/or potentially transformative nature of the proposed work compared to previous work in the field. Also, it is important to address why the proposed work is important in terms of engineering science, as well as to also project the potential impact on society and/or industry of success in the research. The novelty or potentially transformative nature of the research should be included, as a minimum, in the Project Summary of each proposal.
Faculty Early Career Development (CAREER) program proposals are strongly encouraged. Award duration is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the CAREER URL here for more information.
Proposals for Conferences, Workshops, and Supplements: PIs are strongly encouraged to discuss their requests with the Program Director before submission of the proposal.
Grants for Rapid Response Research (RAPID) and **EArly-concept Grants for Exploratory Research (EAGER)** are also considered when appropriate. Please note that proposals of these types must

be discussed with the program director before submission. Further details are available in the **Proposal and Award Policies and Procedures Guide (PAPPG)** download found here. **Grant Opportunities for Academic Liaison with Industry (GOALI)** proposals that integrate fundamental research with translational results and are consistent with the application areas of interest to each program are also encouraged. Please note that GOALI proposals must be submitted during the annual unsolicited proposal window for each program. More information on GOALI can be found here.
Awards: Various
Letter of Intent: See the program information
Full Proposal Submission Deadline: October 1, 2018 - October 22, 2018
Contacts: Ronald Joslin rjoslin@nsf.gov (703) 292-7030

Grant Program: Smart and Autonomous Systems (S&AS)
Agency: National Science Foundation NSF 18-557
RFP Website: https://www.nsf.gov/pubs/2018/nsf18557/nsf18557.htm
Brief Description: The **Smart and Autonomous Systems** (S&AS) program focuses on **Intelligent Physical Systems** (IPS) that are capable of robust, long-term autonomy requiring minimal or no human operator intervention in the face of uncertain, unanticipated, and dynamically changing situations. IPS are systems that combine perception, cognition, communication, and actuation to operate in the physical world. Examples include, but are not limited to, robotic platforms, self-driving vehicles, underwater exploration vehicles, and smart grids. Most current IPS operate in pre-programmed ways and in a limited variety of contexts. They are largely incapable of handling novel situations, or of even understanding when they are outside their areas of expertise. To achieve robust, long-term autonomy, however, future IPS need to be aware of their capabilities and limitations and to adapt their behaviors to compensate for limitations and/or changing conditions.

To foster such intelligent systems, the S&AS program supports research in four main aspects of IPS: **cognizant**, **taskable, adaptive**, and **ethical**. *Cognizant* IPS exhibit high-level awareness of their own capabilities and limitations, anticipating potential failures and re-planning accordingly. *Taskable* IPS can interpret high-level, possibly vague, instructions, planning out and executing concrete actions that are dependent on the particular context in which the system is operating. *Adaptive* IPS can change their behaviors over time, learning from their own experiences and those of other entities, such as other IPS or humans, and from instruction or observation. *Ethical* IPS should adhere to a system of societal and legal rules, taking those rules into account when making decisions. Each of these research areas requires the IPS to be **knowledge-rich**, employing a variety of representation and reasoning mechanisms, such as semantic, probabilistic, commonsense, and meta-reasoning.
Awards: Standard grants; **Anticipated Funding Amount:** $12,000,000
Letter of Intent: Not Required
Full Proposal Submission Deadline: July 31, 2018
Contacts: Reid Simmons, Program Director, CISE/IIS, telephone: (703) 292-4767,
email: resimmon@nsf.gov

Grant Program: NSF/FDA Scholar-in-Residence at FDA
Agency: National Science Foundation NSF 18-556
RFP Website: https://www.nsf.gov/pubs/2018/nsf18556/nsf18556.htm
Brief Description: The National Science Foundation (NSF), through the Directorate for Engineering, the Directorate of Computer and Information Science and Engineering Division of Computer and Network Systems, and the Directorate for Mathematical and Physical Sciences Division of Materials Research, along with the U.S. Food and Drug Administration (FDA), through its Center for Devices and

Radiological Health (CDRH), have established the NSF/FDA Scholar-in-Residence Program at FDA. This program comprises an interagency partnership for the investigation of scientific and engineering issues concerning emerging trends in medical device technology. This partnership is designed to enable investigators in science, engineering, and computer science to develop research collaborations within the intramural research environment at the FDA. This solicitation features three flexible mechanisms for support of research at the FDA: 1) Principal Investigators at FDA; 2) Postdoctoral Researchers at FDA; and 3) Graduate Students at FDA.
Awards: Standard grants; **Anticipated Funding Amount:** $750,000
Letter of Intent: Not Required
Full Proposal Submission Deadline: Proposals Accepted Anytime
Contacts: Leon Esterowitz, Program Director, NSF, ENG/CBET, telephone: (703) 292-7942, email: lesterow@nsf.gov

- Dinesh V. Patwardhan, Associate Director, Office of Science and Engineering Laboratories, Center for Devices and Radiological Health, FDA, FDA/CDRH, telephone: (301) 796-2622, email: nsf.sir@fda.hhs.gov

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National Institutes of Health

Grant Program: BRAIN Initiative: Exploratory Team-Research BRAIN Circuit Programs - eTeamBCP (U01 Clinical Trial Not Allowed)
Agency: National Institutes of Health RFA-NS-18-029
RFP Website: https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-18-029.html
Brief Description: The broad goal of the BRAIN Initiative is to understand the circuits and patterns of neural activity that give rise to mental experience and behavior, which will provide a foundation for understanding and treating diverse neurological, psychiatric, and behavioral disorders. It is the dynamic activity of massively interconnected ensembles of neurons in specially organized networks that give rise to the internal states we experience as sensations, perceptions, emotions, thoughts, memories, and movements. The activity of these networks is the substrate of cognitive processes such as attention, intention, emotions, and rational processes such as reasoning and decision making. Ultimately, these covert, internal activities are translated into patterns of neural activation that lead to overt behaviors, from simple reflexes to highly coordinated movements such as reaching and walking, to more complex behaviors such as navigating the environment and foraging, or speech and language. Dysfunction of these large systems of neurons due to disease, injury or developmental anomaly are the basis of neural and mental disorders. The mission of the NIH BRAIN initiative is to understand how large scale neural systems contribute to cognitive and neurological function in both health and disease.

We can seek to understand circuits of the brain by systematically controlling stimuli and measuring the resulting behaviors, while actively recording and manipulating the dynamic patterns of neural activity. We now have transformational technologies that allow us to record large, interrelated ensembles of neurons on an unprecedented scale during active behaviors. For example, it is now possible to study the collective neural activities of entire sensory-motor circuits. By clever manipulation of environments and contingencies, we can devise behavioral tasks that engage memories, decision making, and selective attention, while documenting and manipulating the functional relationships within the neural circuits that subtend the behaviors.

Increasingly, sophisticated approaches are required for data acquisition, analysis, interpretation, and dissemination. These demanding requirements often involve expertise not typically associated with traditional neurobiological experiments and training, such as expertise in computer and information science, hardware and software engineering, statistics, machine learning, and computational methods. As new, large-scale, systems approaches become routine, it will be essential to develop testable theories of

how information originating from millions of neurons in diverse and widespread brain regions can be integrated to produce a wide range of motor, sensory and cognitive behaviors, and how this information evolves dynamically to adapt, refine and learn.

The purpose of this FOA is to provide resources for integration of experimental, analytic, and theoretical capabilities for large-scale analysis of neural systems and circuits within the context, and during the simultaneous measurement of complex behavior. We seek applications to build teams of experts for exploratory studies that integrate theory and modeling with new and emerging methods for recording and manipulating neural circuits across multiple brain regions, to elucidate a specific behavioral or neural system in terms of dynamic circuit activity. Novel and innovative approaches to theory and analysis are expected. Multiple species are encouraged where fundamental principles can be revealed with comparative approaches.

Awards: Application budgets are not limited but need to reflect the actual needs of the proposed project.
Letter of Intent: June 23, 2018
Deadline: July 23, 2018 and June 10, 2019 by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on this date.
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: BRAIN Initiative: Development and Validation of Novel Tools to Probe Cell-Specific and Circuit-Specific Processes in the Brain (R01 Clinical Trial Not Allowed)
Agency: National Institutes of Health RFA-MH-19-136
RFP Website: https://grants.nih.gov/grants/guide/rfa-files/RFA-MH-19-136.html
Brief Description: This funding opportunity announcement (FOA) is designed to support development and validation of novel tools to facilitate the detailed analysis of cells and circuits and provide insights into the neural circuitry and structure underlying complex behaviors. The human brain consists of an estimated one hundred billion neurons and more than one trillion supporting glial cells that are uniquely organized to confer the extraordinary computational activities of the brain. Cell types are categorized by their anatomical position, neurotransmitter content, dendritic and axonal connections, receptor profile, gene expression profile and distinct electrical properties. Although the human brain has long been the focus of numerous studies with many major achievements along the way, to date we remain largely ignorant about the specific details such as cell types and connections that are responsible for rapid information processing. Defining cellular and circuit-level function is dependent on detailed knowledge about the components and structure of the circuit. Such knowledge, in turn, is fundamental to understanding how these features underlie cognition and behavior, which should aid in the development of targeted cell-type and circuit-specific therapeutics to treat brain disorders. This initiative is focused on developing tools (or vastly improving existing tools) to enable access to individual cells and defined groups of cells within neuronal circuits. The tools sought through this FOA can include novel genetic or non-genetic methods for targeted delivery of genes, proteins, and chemicals to specific cells or tightly defined cell types and circuits.

Development of novel tools that will delineate anatomical connections between cells and expand our knowledge of circuit architecture and function is an area well poised for additional investment. Several efforts are currently underway to study large-scale, long-range connections, such as the NIH Human Connectome Project, as well as large scale rodent connectional studies. Recent development of new technologies (e.g., CLARITY, expansion microscopy, MerFISH, and several other imaging breakthroughs) allow an unprecedented three-dimensional view into the post-mortem brain. While still at an early stage, these exciting technologies hold promise for mapping short- and long-range connections throughout the brain. Coupled with improved activity monitoring technologies in awake, behaving animals, these new tools promise an understanding of circuitry in action. Further development of these

technologies is crucial to push the envelope beyond our current capabilities. To this end, applicants from the biological sciences are encouraged to establish collaborations with nanobiologists, material scientists, engineers and colleagues in other disciplines to develop groundbreaking approaches to study brain activity.
Awards: Application budgets are not limited but need to reflect the actual needs of the proposed project.
Letter of Intent: August 27, 2018
Deadline: September 27, 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 this date. 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: NIH Director's Pioneer Award (DP1 - Clinical Trial Optional)
Agency: National Institutes of Health RFA-RM-18-007
RFP Website: https://grants.nih.gov/grants/guide/rfa-files/RFA-RM-18-007.html
Brief Description: The NIH Director's Pioneer Award supports individual scientists of exceptional creativity who propose highly innovative approaches to addressing major challenges in the biomedical or behavioral sciences towards the goal of enhancing human health. The NIH recognizes a unique and compelling need to promote diversity in the biomedical and behavioral research workforce and expects its efforts to lead to the recruitment of the most talented researchers from all groups. Thus, this Funding Opportunity Announcement encourages applications from talented researchers from diverse backgrounds underrepresented in biomedical/behavioral research, including underrepresented racial and ethnic groups, persons with disabilities, and women. Applications proposing research on any topic within the broad mission of NIH are welcome.

Emphases are on the qualities of the investigator and the innovativeness and potential impact of the proposed research. Preliminary data and detailed experimental plans are not requested. To be considered pioneering, the proposed research must reflect substantially different ideas from those being pursued in the investigator's current research program or elsewhere. The Pioneer Award is not intended to expand a current research program into the area of the proposed project. While the research direction may rely on the applicant's prior work and expertise as its foundation, it cannot be an obvious extension or scale-up of a current research enterprise which may be competitive as a new or renewal R01 application. Rather, the proposed project must reflect a fundamental new insight into the potential solution of a problem, which may develop from exceptionally innovative approaches and/or radically unconventional hypotheses. Applications for projects that are extensions of ongoing research should not be submitted.

Pioneer awardees are required to commit the major portion (more than 6 person-months or at least 51%) to activities supported by the Pioneer Award research project in the first three years of the project period. Effort expended toward teaching, administrative, or clinical duties should not be included in this calculation. Awardees will be allowed to reduce effort to at least 4 person-months (33%) and at least 3 person-months (25%) in the fourth and fifth years, respectively, to help them transition to other sources of support, since Pioneer Awards cannot be renewed. Applicants with current research commitments equal to 6 person-months or more must adjust their effort on existing grants during the award to devote the required minimum effort to the Pioneer Award project. Applicants who will not be able to meet this requirement should not submit applications.

The NIH Director's Pioneer Award is part of the High-Risk, High-Reward Research program funded through the NIH Common Fund, which supports cross-cutting programs that are expected to have exceptionally high impact. All Common Fund initiatives invite investigators to develop

bold, innovative, and often risky approaches to address problems that may seem intractable or to seize new opportunities that offer the potential for rapid progress.
Awards: Awards will be for $700,000 in direct costs per year, plus applicable Facilities and Administrative (F&A) costs.
Letter of Intent: Not required
Deadline: September 14, 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 this date. 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: BRAIN Initiative: Targeted BRAIN Circuits Projects- TargetedBCP (R01 Clinical Trial Not Allowed)
Agency: National Institutes of Health RFA-NS-18-030
RFP Website: https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-18-030.html
Brief Description: This FOA is one of a family of "Integrated Approaches" NIH BRAIN FOAs that range from small or exploratory, targeted brain circuits projects with specific research deliverables (R21, R01) to large, team-research projects with exploratory aims (U01) or with extensive and elaborated goals and a 5-10 year horizon of discovery (U19). In each case, the FOAs are guided by BRAIN 2025 A Scientific Vision: "The Application of Integrated Technologies to Study Fundamental Questions in Neuroscience: Numerous long-standing problems in brain science will benefit dramatically from the integrated experimental approach made possible by the BRAIN Initiative." Potential applicants are encouraged to visit the NIH BRAIN Initiative website for information and guidance https://www.braininitiative.nih.gov/funding/initiatives.htm.

All FOAs in this family of initiatives emphasize the use of cutting-edge methods of activation and recording to understand the behavior of circuits at cellular and sub-second levels of spatial and temporal resolution; that is, at the level of the functional units of circuits. All FOAs welcome basic research using human or non-human animal subjects. However, there is a specific FOA for neurobiology research involving research opportunities employing invasive neural recording (Research Opportunities Using Invasive Neural Recording and Stimulating Technologies in the Human Brain). This family of initiatives also seeks advances in theory and/or analytics, and has a requirement of a data standards and management plan, as well as a data dissemination plan to facilitate use of the results by the research community.
Targeted Brain Circuits Projects

The primary goal of this FOA is to solicit research projects using innovative, methodologically-integrated approaches to understand how circuit activity gives rise to mental experience and behavior. The activity of neural circuits is the substrate of cognitive processes such as perception, attention, reasoning, intention, decision-making, and emotion. These internal activities are translated into patterns of activation that support simple motor behaviors, as well as more complex behaviors such as navigation and communication. Dysfunction of these large systems of neurons due to disease, injury, or developmental anomaly is the basis of neural and mental disorders. A mission of the NIH BRAIN Initiative is to understand how large scale neural systems contribute to cognitive and neurological function in both health and disease.

Targeted Brain Circuit Project R01 awards will support an individual laboratory or a small multi-PD/PI group. Supported projects will reflect the NIH BRAIN Initiative interests in the application of cutting-edge methodologies in the service of understanding brain circuit function at cellular and sub-second levels of resolution in ethologically relevant behaviors. Applications should offer specific, feasible research goals as endpoints within a 5-year term.

The proposed studies should relate to at least one of the seven major topic areas of the BRAIN 2025 report:

1. Discovering diversity: Identify and provide experimental access to the different cell types to determine their roles in the context of circuit function.

2. Maps at multiple scales: Generate structural and functional circuit diagrams that can span resolution from synapses to the whole brain.

3. The brain in action: Produce a dynamic picture of the functioning brain by developing and applying improved methods for large-scale monitoring of neural activity.

4. Demonstrating causality: Link brain activity to behavior with precise interventional tools that change neural circuit dynamics.

5. Identifying fundamental principles: Produce conceptual foundations about circuit dynamics and functional connectivity for understanding the biological basis of mental processes through development of new theoretical and data analysis tools.

6. Advancing human neuroscience: Develop innovative technologies to understand brain circuits and ensembles of circuits that inform understanding of the human brain and mechanisms for treating its disorders.

7. From BRAIN Initiative to the brain: Integrate new technological and conceptual approaches produced in Goals #1-6 to discover how dynamic patterns of neural activity are transformed into cognition, emotion, perception, and action in health and disease.

Awards: Application budgets are not limited but need to reflect the actual needs of the proposed project.
Letter of Intent: June 3, 2018
Deadline: September July 3, 2018; November 6, 2018; July 3, 2019; November 6, 2019; July 1, 2020; November 10, 2020 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 Defense/US Army/DARPA/ONR

Grant Program: DARPA Biological Technologies
Agency: Department of Defense DARPA HR001118S0041
Website:
https://www.fbo.gov/index?s=opportunity&mode=form&id=715c01b4c4e355ec67f46ad2b70db8b3&tab=core&_cview=0
Brief Description: The mission of BTO is to foster, demonstrate, and transition breakthrough fundamental research, discoveries, and applications that integrate biology, engineering, computer science, mathematics, and the physical sciences. BTO's investment portfolio goes far beyond life sciences applications in medicine to include areas of research such as human-machine interfaces, microbes as production platforms, and deep exploration of the impact of evolving ecologies and environments on U.S. readiness and capabilities. BTO's programs operate across a wide range of scales, from individual cells to the warfighter to global ecosystems. BTO responds to the urgent and long-term needs of the Department of Defense (DoD) and addresses national security priorities. BTO is interested in submissions related to the following areas: • Discovering and leveraging novel findings from neuroscience, psychology, cognitive science, and related disciplines to advance treatment and resilience in neurological health and optimize human performance. • Understanding and improving interfaces between the biological and physical world to enable seamless hybrid systems. • Developing and leveraging fundamental understanding of the underlying design rules that govern the behavior of biological systems. • Developing

new tools and capabilities for forward engineering of biological systems, such as cells, tissues, organs, organisms, and complex communities, to both develop new products and functional systems, as well as to gain new insights into underlying mechanisms. • Developing new platform technologies that integrate, automate, and miniaturize the collection, processing, and analysis of biological samples.
Awards: Various
Proposal Deadline: Open Period – April 25, 2018 through April 25, 2019 o Proposal Abstracts and Full Proposals will be submitted on a rolling basis until April 25, 2019, 4:00 pm ET
Contact Information: BAA Coordinator BTOBAA2018@darpa.mil

Grant Program: Bilateral Academic Research Initiative (BARI) Pilot Program
Agency: Department of Defense US Army W911NF-18-S-0007
Website: https://www.grants.gov/web/grants/search-grants.html
Brief Description: This FOA is for the Bilateral Academic Research Initiative Pilot Program (BARI), which is jointly sponsored by the US Office of the Secretary of Defense (OSD) and the United Kingdom's (UK's) Ministry of Defense (MOD). The BARI program addresses high risk basic research as an international collaboration. This research should attempt to understand new phenomena or produce discoveries that would have significant impact on enabling new and improved operational technologies of interest to the US and UK militaries. The program is in its pilot year and the goal is to produce significant scientific breakthroughs with far reaching consequences in the field of artificial intelligence. Proposals focused on specific devices or components are beyond the scope of this FOA. The Department of Defense (DoD) agencies and Ministry of Defense agencies involved in this program reserve the right to select one or none of the proposals submitted in response to this announcement for award. The participating DoD agencies and MOD Agencies will provide no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this FOA will not be returned. Unless noted in an offeror's proposal to the contrary, unsuccessful proposals will be retained for six (6) months from declination and then properly destroyed. It is the policy of participating DoD agencies and MOD agencies to treat all proposals as sensitive, competitive information and to disclose their contents only for the purposes of evaluation.
Awards: Up to $3,000,000
Proposal Deadline: July 6, 2018
Contact Information: William Creech
Grants/Contracting Officer
Phone 9195494387
william.a.creech3.civ@mail.mil

Grant Program: NRL Long Range Broad Agency Announcement (BAA) for Basic and Applied Research
Agency: Department of Defense Naval Research Laboratory N00173-18-S-BA01
Website: https://www.nrl.navy.mil/doing-business/Current-NRL-BAA
Brief Description: The Naval Research Laboratory (NRL) The Naval Research Laboratory (NRL) is the Navy's corporate laboratory. NRL conducts basic and applied research for the Navy in a variety of scientific and technical disciplines. The basic research program is driven by perceptions about future requirements of the Navy. NRL conducts most of its research program at its own facilities but also funds some related research such as anticipated by this announcement. More extensive research support opportunities are available from the Naval Research Laboratory (NRL). NRL announcements may be accessed via the Internet at https://www.nrl.navy.mil/doingbusiness/contracting-division/baa. NRL is interested in receiving proposals for Long-Range Science and Technology (S&T) Projects which offer

potential for advancement and improvement of Navy and Marine Corps operations. Readers should note that this is an announcement to declare NRL's broad role in competitive funding of meritorious research across a spectrum of science and engineering disciplines. A brief description of the NRL Program Codes and the science and technology thrusts that NRL is pursuing is provided below. Additional information can be found at the NRL website at https://www.nrl.navy.mil/research/directorates-divisions/. This announcement is an expression of interest only and does not commit the Government to make any award or to pay for any proposal preparation costs. The cost of proposal preparation for response to a BAA is not considered an allowable direct charge to any resultant contract or any other contract; however, it may be an allowable expense to the normal bid and proposal indirect cost specified in FAR 31.205-18.
Awards: Various
Proposal Deadline: May 9, 2019
Contact Information: Mary Johnson Contract Specialist Phone 202-767-2021

Grant Program: U.S. Army Research Institute for the Behavioral and Social Sciences Broad Agency Announcement for Basic, Applied, and Advanced Research (Fiscal Years 2018-2023)
Agency: Department of Defense Dept. of the Army – USAMRAA W911NF-18-S-0005
Website:
https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=e1ddf5bd04750f82fd3cd68126fd76c7
Brief Description: The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) announces the ARI FY18-23 Broad Agency Announcement for Basic, Applied, and Advanced Scientific Research. This Broad Agency Announcement, which sets forth research areas of interest to the United States Army Research Institute for the Behavioral and Social Sciences, is issued under the provisions of paragraph 6.102(d)(2) of the Federal Acquisition Regulation (FAR), which provides for the competitive selection of proposals. 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 provisions of Public Law 98-369 (The Competition in Contracting Act of 1984) and subsequent amendments. The U.S. Army Research Institute for the Behavioral and Social Sciences is the Army's lead agency for the conduct of research, development, and analyses for the improvement of Army readiness and performance via research advances and applications of the behavioral and social sciences that address personnel, organization, training, and leader development issues. Programs funded under this BAA include basic research, applied research, and advanced technology development that can improve human performance and Army readiness.

Those contemplating submission of a proposal are encouraged to contact the ARI Technical Point of Contact (TPOC) for the respective topic area cited in the BAA. If the R&D warrants further inquiry and funding is available, submission of a proposal will be entertained. The recommended three-step sequence is (1) telephone call to the ARI TPOC or responsible ARI Manager, (2) white paper submission, (3) full proposal submission. Awards may be made in the form of contracts, grants, or cooperative agreements. Proposals are sought from educational institutions, non-profit/not-for-profit organizations, and commercial organizations, domestic or foreign, for research and development (R&D) in those areas specified in the BAA. The U.S. Army Research Institute for the Behavioral and Social Sciences encourages Historically Black Colleges and Universities/Minority Serving Institutions (HBCU/MSI) and small businesses to submit proposals for consideration. Foreign owned, controlled, or influenced organizations are advised that security restrictions may apply that could preclude their participation in these efforts. Government laboratories, Federal Funded Research and Development Centers (FFRDCs), and US Service Academies are not eligible to participate as prime contractors or recipients. However, they may be able to participate as subcontractors or subrecipients (eligibility will be determined on a case by case basis).

Awards: Various
Proposal Deadline: This BAA is a continuously open five-year announcement valid throughout the period beginning 30 April 2018 and ending 29 April 2023. New start awards are normally obligated early within each fiscal year. Amendments to this BAA will be posted to https://www.fbo.gov (FedBizOpps) and http://www.grants.gov when they occur. Interested parties are encouraged to periodically check these websites for updates and amendments.
Contact Information: Maria Nelson Contracting Officer Phone 919-541-4992
maria.d.nelson.civ@mail.mil

Grant Program: DoD Peer Reviewed Medical Research Program (PRMRP) Investigator-Initiated Research Award
Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH18PRMRPIIRA
Website: http://cdmrp.army.mil/funding/pa/FY18-PRMRP-IIRA.pdf
Brief Description: The vision of the FY18 PRMRP is to improve the health 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 FY18 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.

All applications for PRMRP funding must specifically address at least one of the Topic Areas as directed by Congress and must be directly relevant to the healthcare needs of military Service members, Veterans, and/or beneficiaries. If the proposed research does not specifically address at least one of the FY18 PRMRP Topic Areas, the Government will administratively withdraw the application. The Government reserves the right to reassign the application's Topic Area if submitted under an inappropriate Topic Area.
Awards: The anticipated direct costs budgeted for the entire period of performance for a single PI FY18 PRMRP IIRA award will not exceed $1.2M. The anticipated direct costs budgeted for the entire period of performance for an FY18 PRMRP IIRA award with the Partnering PI Option will not exceed $1.5M.
Proposal Deadline:
Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), June 12, 2018
Invitation to Submit an Application: July 2018
Application Submission Deadline: 11:59 p.m. ET, September 20, 2018
Contact Information: CDMRP Helpdesk
Phone: 301-682-5507 Email: help@eBRAP.org

Grant Program: Proof of Concept Commercialization Pilot Program Innovation Corps @ Department of Defense (I-Corps @ DoD)
Agency: Department of Defense Dept of the Army -- Materiel Command W911NF-18-S-0004
Website: https://www.arl.army.mil/www/default.cfm?page=8
Brief Description: The Department of Defense (DoD) is soliciting applications from current/recent DoD awardees on basic research topics to receive mentoring and funding to accelerate the transition and commercialization of the funded research. The I-Corps @ DoD program is designed to support the acceleration of basic research innovations from qualifying institutions by providing Principal Investigators (PIs) and students with training and mentorship in customer discovery and the commercialization process. The goals of this program are to spur the transition of fundamental research with potential defense relevance to the marketplace, to encourage collaboration between academia and

industry, and to train students, faculty, and other researchers to understand innovation and entrepreneurship. There will be three outcomes of the I-Corps @ DoD program: 1) a clear go/no go decision regarding viability of products and services, 2) should the decision be to move the effort forward, a transition plan to do so, and 3) an understanding of what kind of minimum viable product demonstration would be required by key partners and customer segments.

The I-Corps @ DoD program is a pilot program modeled after the National Science Foundation (NSF) I-Corps™ program (Note: Trademark hereafter asserted and referred to as I-Corps). The key component of the I-Corps @ DoD program is the I-Corps Team. The I-Corps Team is comprised of the Technical Lead, the Entrepreneurial Lead and the Mentor. The Entrepreneurial Lead is typically a postdoctoral researcher, graduate student, or other student, possesses relevant technical knowledge and a deep commitment to investigate the commercial landscape surrounding the innovation. The Mentor brings entrepreneurial experience and serves as the principal guide in determining the technology disposition – Technical Leads/PIs ideally locate their own mentor, but can also contact the I-Corps @ DoD Program Manager for assistance with locating a mentor.

Awards: The Innovation Corps at the Department of Defense (I-Corps @ DoD) program is an opportunity for Principal Investigators (PIs) to learn how to commercialize their discoveries / innovations. Successful applicants will receive a grant of up to $70,000 to attend a program that provides extensive training in product commercialization from industry experts and 'serial entrepreneurs' who have helped train over 1000 I-Corps™ Teams in how to bring their innovations to market.

White Paper Submission: 8 June 2018

Proposal Deadline: 6 July 2018

Contact Information: Kevin Bassler Grants Officer Grants Officer Contact information

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Grant Program: 2019 Department of Defense Multidisciplinary Research Program of the University Research Initiative (MURI) - ARMY SUBMISSION

Agency: Department of Defense ONR, ARO, Air Force Office of Scientific Research

ONR # N00014-18-S-F006

ARO # W911NF18S0003

AFOSR # FOA-AFRL-AFOSR-2018-0001

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

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). DoD's basic research program invests broadly in many fields to ensure that it has early cognizance of new scientific knowledge.

White papers and proposals addressing the following topics should be submitted to the Office of Naval Research (ONR):

Topic 1: Fundamental Limits on Information Latency

Topic 2: Molecularly Programmable Graphene Architecture (MPGA)

Topic 3: Identifying invariances for improved modeling and prediction of oceanographic phenomena

Awards: Various

White Paper Submission: White papers may be submitted via e-mail directly to a Research Topic Chief, via the United States Postal Service (USPS), or via a commercial carrier to the agency specified for the topic. For hard copy submissions, use the addresses provided in Section II. D. 2. a, entitled, "Address for Submission of Hard Copy White Papers." The due date and time for receipt of white papers is no later than 29 June 2018 (Friday) at 11:59 PM Eastern Time.
Proposal Deadline: Proposals must be submitted and received electronically through Grants.gov not later than 16 October 2018 (Tuesday) at 11:59 PM Eastern Time to be considered for selection. This is the final due date.
Contact Information: Kia McCormick Procurement Analyst Phone (919)549-4281 Dr. Ellen Livingston MURI Program Manager Office of Naval Research Email: ellen.s.livingston@navy.mil

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Grant Program: 2019 DEFENSE UNIVERSITY RESEARCH INSTRUMENTATION PROGRAM (DURIP)
Agency: Department of Defense Office of Naval Research AFOSR ARO
AFOSR: FOA-AFRL-AFOSR-2018-0002
ARO: W911NF18S0002
ONR: N00014-18-S-F007
Website: https://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements
Brief Description: As the capacity of the DoN Science and Technology (S&T) workforce is interconnected with the basic research enterprise and STEM education system, ONR recognizes the need to support efforts that can jointly improve STEM student outcomes and align educational efforts with Naval S&T current and future workforce needs. This announcement explicitly encourages projects that improve the capacity of education systems and communities to create impactful STEM educational experiences for students and workers. Submissions are encouraged to consider including active learning approaches and incorporating 21st century skill development. Projects must aim to increase student and worker engagement in STEM and enhance people with needed Naval STEM capabilities. ONR encourages applications to utilize current STEM educational research for informing project design and advancing our understanding of how and why people choose STEM careers and opportunities of naval relevance. While this announcement is relevant for any stage of the STEM educational system, funding efforts will be targeted primarily toward projects addressing the below communities or any combination of these communities: • Secondary education communities; • Post-Secondary communities; • Informal science communities; • Current naval STEM workforce communities. Project scope may range in size and complexity. Projects that are already established with prior funding sources or have established stakeholders are especially encouraged to consider the following scope areas: • Develop and implement exploratory pilot projects that seek to create new educational experiences within educational and training communities. • Develop larger cohesive STEM education and training activities that strengthen the capacity of regional communities and stakeholders to improve STEM education and training. • Establish meetings of stakeholders that must seek to connect relevant people and organizations to explicitly develop broader projects for impacting entire communities.
Awards: Various
Submission of White Papers: As mentioned prior, white papers are a MANDATORY component of a two-part submission process. White papers must NOT be submitted through the Grants.gov application process. Instead, white papers are to be submitted via email to the attention of Dr. Michael Simpson at onr_stem@navy.mil as either a PDF or Microsoft Word 2010 compatible file. The subject line of the email shall read "N00014-18-S-F003 White Paper Submission." The due date and time for receipt of white papers begins on 2 April 2018 and ends on 31 July 2018 (Tuesday) at 5:00 PM Eastern Time.

Proposal Deadline: Applications may only be submitted by invitation and received electronically through https://www.grants.gov/ no later than 28 September 2018 (Friday) at 11:59 PM Eastern Time.
Contact Information: Dr. Michael Simpson Director of Education and Workforce Office of Naval Research 875 North Randolph Street Arlington VA 22203-1995 Email: onr_stem@navy.mil

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Grant Program: Air Force Fiscal Year 2019 Young Investigator Research Program (YIP)
Agency: Department of Defense Air Force Office of Scientific Research FA9550-18-S-0002
Website: https://www.grants.gov/web/grants/search-grants.html
Brief Description: The Fiscal Year 2019 Air Force Young Investigator Research Program (YIP) intends support young in career scientists and engineers who have received Ph.D. or equivalent degrees by 1 April 2012 or later showing exceptional ability and promise for conducting basic research. The program objective is to foster creative basic research in science and engineering; enhance early career development of outstanding young investigators; and increase opportunities for the young investigator to recognize the Air Force mission and related challenges in science and engineering. 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. 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. Please review the remainder of this announcement for additional information. We anticipate approximately thirty-six (36) awards under this competition if funds are available.
Please see the eligibility requirements in the solicitation: Doctorate no earlier than 01 Apr 2012
Awards: Most YIP awards are three (3) years in duration, funded up to $150,000 per year for a total of approximately $450,000. Proposals should be submitted in adherence to these guidelines.
Proposal Deadline: Proposals must be received electronically through Grants.gov by Friday, 01 Jun 2018 at 11:59 PM Eastern time to be considered. Technical or general pre-proposal inquiries and questions must be received in writing by electronic mail not later than Friday, 27 April 2018 to be considered.
Contact Information: MS. ELLEN M. ROBINSON, AFOSR/RTB Program Coordinator Telephone: (703) 588-8527 Email: afosryip@us.af.mil
General Inquires: MS. BRITTANY TURNER, AFOSR/PKC Procurement Analyst Email: brittany.turner.5@us.af.mil

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Department of Education

Grant Program: Office of Innovation and Improvement (OII): Education Innovation and Research Program: Early-phase Grants
Agency: Department of Education CFDA Number 84.411C ED-GRANTS-041918-003
Website: https://innovation.ed.gov/what-we-do/innovation/education-innovation-and-research-eir/
Brief Description: The Education Innovation and Research (EIR) program, established under section 4611 of the Elementary and Secondary Education Act, as amended (ESEA), provides funding to create, develop, implement, replicate, or take to scale entrepreneurial, evidence-based, field-initiated innovations to improve student achievement and attainment for high-need students; and rigorously evaluate such innovations. The EIR program is designed to generate and validate solutions to persistent educational challenges and to support the expansion of those solutions to serve substantially larger numbers of students. The central design element of the EIR program is its multi-tier structure that links the amount of funding that an applicant may receive to the quality of the evidence supporting the efficacy of the

proposed project, with the expectation that projects that build this evidence will advance through EIR's grant tiers: ``Early-phase,'' ``Mid-phase,'' and ``Expansion.'' Applicants proposing innovative projects that are supported by limited evidence can receive relatively small grants to support the development, implementation, and initial evaluation of the practices; applicants proposing projects supported by evidence from rigorous evaluations, such as an experimental study (as defined in this notice), can receive larger grant awards to support expansion across the country. This structure provides incentives for applicants to: (1) Explore new ways of addressing persistent challenges that other educators can build on and learn from; (2) build evidence of effectiveness of their practices; and (3) replicate and scale successful practices in new schools, districts, and States while addressing the barriers to scale, such as cost structures and implementation fidelity. All EIR projects are expected to generate information regarding their effectiveness in order to inform EIR grantees' efforts to learn about and improve upon their efforts, and to help similar, non-EIR efforts across the country benefit from EIR grantees' knowledge. By requiring that all grantees conduct independent evaluations of their EIR projects, EIR ensures that its funded projects make a significant contribution to improving the quality and quantity of information available to practitioners and policymakers about which practices improve student achievement and attainment, for which types of students, and in what contexts. The Department awards three types of grants under this program: ``Early-phase'' grants, ``Mid-phase'' grants, and ``Expansion'' grants. These grants differ in terms of the level of prior evidence of effectiveness required for consideration for funding, the expectations regarding the kind of evidence and information funded projects should produce, the level of scale funded projects should reach, and, consequently, the amount of funding available to support each type of project. Early-phase grants provide funding to support the development, implementation, and feasibility testing of a program, which prior research suggests has promise, for the purpose of determining whether the program can successfully improve student achievement and attainment for high-need students. Early-phase grants must demonstrate a rationale (as defined in this notice). These Early-phase grants are not intended simply to implement established practices in additional locations or address needs that are unique to one particular context. The goal is to determine whether and in what ways relatively newer practices can improve student achievement and attainment for high-need students. This notice invites applications for Early-phase grants only. The notices inviting applications for Mid-phase and Expansion grants are published elsewhere in this issue of the Federal Register. Background: EIR is designed to offer opportunities for States, districts, schools, and educators to develop innovations and scale effective practices that address their most pressing challenges. Early-phase grantees are encouraged to make continuous improvements in project design and implementation before conducting a full-scale evaluation of effectiveness. Grantees should consider questions such as: How easy would it be for others to implement this practice, and how can its implementation be improved? How can I use data from early indicators to gauge impact, and what changes in implementation and student achievement do these early indicators suggest? By focusing on continuous improvement and iterative development, Early-phase grantees can make adaptations that are necessary to increase their practice's potential to be effective and ensure that the EIR-funded evaluation assesses the impact of a thoroughly conceived practice. Early-phase applicants should develop, implement, and test the feasibility of their projects. The evaluation of an Early-phase project should be an experimental or quasi-experimental design study (as defined in this notice) that can determine whether the program can successfully improve student achievement and attainment for high-need students. Early-phase grantees' evaluation designs are encouraged to have the potential to meet the moderate evidence (as defined in this notice) threshold. The Department intends to provide grantees and their independent evaluators with evaluation technical assistance. This evaluation technical assistance could include grantees and their independent evaluators providing to the Department or its contractor updated comprehensive evaluation plans in a format as requested by the technical assistance provider and using such tools as the Department may request. Grantees will be encouraged to update this evaluation plan at least annually to reflect any changes to the evaluation, with updates consistent with the scope and objectives of the approved application.

Awards: Up to $4,000,000. Estimated total funding: $115,000,000
Proposal Deadline:

- Deadline for Notice of Intent to Apply: May 9, 2018
- Deadline for Transmittal of Applications: June 5, 2018
- Deadline for Intergovernmental Review: August 6, 2018

Contact Information: Julius Cotton ED Grants.gov FIND Systems Admin. Phone 202-245-6288 EducationGrantInquiries@ed.gov ; Program Manager: Kelly Terpak, U.S. Department of Education, 400 Maryland Avenue SW, Room 4W312, Washington, DC 20202-5900. Telephone: (202) 453-7122. Email: eir@ed.gov

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Department of Energy

Grant Program: Building America Industry Partnerships and Research Priorities for High Performance Housing Innovation – 2018
Agency: Department of Energy DE-FOA-0001824
Website: https://eere-exchange.energy.gov/#FoaIdc5aa2e1c-5e0d-4077-88e9-f789e6524aab
Brief Description: The mission of BTO's Residential Buildings Integration (RBI) Program is to accelerate energy performance improvements in existing and new residential buildings using an integrated building systems approach to achieve peak energy performance. The RBI Program's market outcome goal is to reduce, by 2025, the energy used for space conditioning and water heating in single-family homes by 40% from 2010 levels. RBI's focus on space conditioning and water heating offers the best opportunities for influencing residential energy use.

With this FOA, RBI will select building science project teams in 2018 for the Building America Program to conduct early stage research and validation of energy performance improvements in existing and new residential buildings with integrated building systems approaches, and achieve optimal home energy performance. These Building America teams will work with industry partners and real world homes to develop and validate technologies and practices that achieve optimal energy and cost performance while effectively managing related risks (e.g., indoor air quality and moisture durability). This FOA builds on work begun in the 2015, 2016, and 2017 Building America FOAs, and is focused primarily on addressing remaining gaps and objectives in the Building America Research-to-Market Plan.

Building America seeks to fund projects with a high potential for significant impact. Successful applicants will present a relevant problem statement, compelling hypothesis and/or solution, and effective research question(s) to be answered or technology/practice to be validated. Successful applications will also include a well-developed plan for answering the research questions or validating the innovative technology/practice, and will describe a clear and compelling rationale linking successful project outcomes to lasting impact in the housing industry. Teams should have strong partnerships with affected industry stakeholders, such as builders, remodelers, and/or manufacturers.

This FOA has two (2) topics, described below. Applicants may submit multiple applications, but each individual application must be submitted to either Topic 1 or Topic 2, not both. Applications will be evaluated using the technical review criteria of the selected topic.
Topic 1 - Baseline In-situ Fault Analysis in Residential Comfort Systems
Topic 2 - Integration of Advanced Residential Envelope and HVAC Systems
Topic 3 - Gap Analysis of Building Industry Standard Practices
The full Funding Opportunity Announcement is published at EERE-Exchange.energy.gov.
For questions and answers pertaining to this FOA, please reference the DE-FOA-0001824 Building America FAQ Log in FOA Documents.
The eXCHANGE system is currently designed to enforce hard deadlines for Letter of Intent and Full Application submissions. The APPLY and SUBMIT buttons automatically disable at the defined

submission deadlines. The intention of this design is to consistently enforce a standard deadline for all applicants.

Applicants that experience issuse with submissions PRIOR to the FOA Deadline: In the event that an Applicant experiences technical difficulties with a submission, the Applicant should contact the eXCHANGE helpdesk for assistance (exchangehelp@hq.doe.gov). The eXCHANGE helpdesk and/or the EERE eXCHANGE System Administrators (eXCHANGE@go.doe.gov) will assist the Applicant in resolving all issues.

Awards; Up to $1,000,000; Available Funding: $11,000,000

Submission Deadline: Jun 11, 2018 Submission Deadline for Full Applications: 06/11/2018, 5:00 pm ET; through EERE Exchange at: https://eere-Exchange.energy.gov, EERE's online application portal.

Contact Information: Mary Murray BTOResidentialBuildingsFOA@ee.doe.gov

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Grant Program: Solid-State Lighting Advanced Technology Research and Development- 2018

Agency: Department of Energy DE-FOA-0001823

Website: https://eere-exchange.energy.gov/#FoaIdb9afac73-0500-4ec6-9a22-ae5adeaa1652

Brief Description: The U.S. Department of Energy's Building Technologies Office (BTO) Emerging Technologies (ET) Program is working in partnership with industry, national laboratories, and academia to develop innovative energy saving technologies, systems, tools, and models that could lead to a significant reduction in building energy consumption.

The ET Program has identified the program-specific goal of supporting the development of cost-effective technologies capable of reducing the energy use of typical buildings by 45% by 2030, relative to high-efficiency technologies available in 2010. Government investment through mechanisms such as the annual solid-state lighting (SSL) funding opportunity targets early-stage R&D enabling industry to develop novel technologies that can improve the efficiency and reduce the energy costs of the nation's buildings.

The objective of this funding opportunity is to select a diverse portfolio of early-stage R&D projects which can contribute to achieving:

- Maximized energy-efficiency of SSL products;
- Improved lifetime, color quality, and lighting system performance for SSL technology; and,
- Reduced costs of SSL sources and luminaires.

Success in this portfolio of early-stage R&D is expected to further contribute to the growth, leadership, and sustainability of domestic U.S. advanced manufacturing within the SSL industry.

An informational webinar is scheduled to take place on May 7, 2018 at 1:00 PM EDT. Please register for this webinar at https://register.gotowebinar.com/register/4903250504106776579. After registering, you will receive a confirmation email containing information about joining the webinar.

Awards; Up to $1,500,000; Available Funding: $15,000,000

Submission Deadline: Full Application Submission Deadline: 6/18/2018 5:00 PM EST

Contact Information: Contract Specialist Nicole E. Murray 412-386-7263 DE-FOA0001823@netl.doe.gov

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NASA

Grant Program: ROSES 2018: Heliophysics Space Weather Operations to Research

Agency: NASA NNH18ZDA001N-HSWO2R

Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BE17AD920-C9F2-600D-5913-6951AB56F31F%7D&path=open&method=init

Brief Description: NASA's heliophysics strategic objective is to understand the Sun and its interactions with the Earth and the Solar System, including space weather. In this framework, the Heliophysics Research Program is guided by goals defined in the NASA 2014 Science Plan (available at https://science.nasa.gov/about-us/science-strategy) and the 2013 National Research Council Decadal Strategy for Solar and Space Physics report, Solar and Space Physics: A Science for a Technological Society (www.nap.edu/catalog.php?record_id=13060) and its purpose is to enable achieving these goals, which are: 1. Determine the origins of the Sun's activity and predict the variations in the space environment; 2. Determine the dynamics and coupling of Earth's magnetosphere, ionosphere, and atmosphere and their response to solar and terrestrial inputs; 3. Determine the interaction of the Sun with the Solar System and the interstellar medium; 4. Discover and characterize fundamental processes that occur both within the heliosphere and throughout the Universe. The Heliophysics Research Program seeks to understand phenomena, on a broad range of spatial and temporal scales, the fundamental processes that drive them, how these processes combine to create space weather events, and to enable a capability for predicting future space weather events. In concert with the other NASA science divisions (Planetary Science, Astrophysics, and Earth Science), the program shares responsibility for learning about the Earth, our solar system, the universe, and their interrelationships.
Awards: Standard Grants
Proposal Deadline: August 03, 2018
Contact: Terrance Onsager
Heliophysics Division
Science Mission Directorate
NASA Headquarters
Washington, DC 20546-0001
Telephone: (202) 358-1615
Email: terrance.g.onsager@nasa.gov

Grant Program: Early Stage Innovation (ESI)
Agency: NASA 80HQTR18NOA01-18ESI-B2
Website: https://nspires.nasaprs.com/external/solicitations/summary!init.do?solId=%7B04D6F05D-EC44-7D17-7782-69E354E0D422%7D&path=open
Brief Description: The National Aeronautics and Space Administration (NASA) Headquarters has released a solicitation, titled Early Stage Innovations (ESI), as an appendix to the Space Technology Mission Directorate (STMD) umbrella NASA Research Announcement (NRA) titled "Space Technology Research, Development, Demonstration, and Infusion 2018 (SpaceTech-REDDI-2018), on May 2, 2018. The solicitation is available by opening the NSPIRES homepage at http://nspires.nasaprs.com/ by selecting "Solicitations," then selecting "Open Solicitations," and, finally, selecting "Early Stage Innovations (ESI)."

STMD, and the Space Technology Research Grants (STRG) Program in particular, seek proposals from accredited U.S. universities to develop unique, disruptive, or transformational space technologies that have the potential to lead to dramatic improvements at the system level - performance, weight, cost, reliability, operational simplicity, or other figures of merit associated with space flight hardware or missions. Although progress under an award may be incremental, the projected impact at the system level must be substantial and clearly defined.

Our Nation's universities couple fundamental research with education, encouraging a culture of innovation based on the discovery of knowledge. Universities are, therefore, ideally positioned to both conduct fundamental space technology research and diffuse newly-found knowledge into society at large through graduate students and industrial, government, and other partnerships. STMD investments in space technology research at U.S. universities promote the continued leadership of our universities as an

international symbol of the country's scientific innovation, engineering creativity, and technological skill. These investments also create, fortify, and nurture the talent base of highly skilled engineers, scientists, and technologists to improve America's technological and economic competitiveness.

Only accredited U.S. universities are eligible to submit proposals. Teaming is permitted - see solicitation for complete eligibility requirements as well as teaming restrictions.

A PI (see solicitation for restrictions) or Co-I may participate in no more than two proposals in response to this solicitation. The Appendix exclusively seeks proposals that are responsive to one of the six topics:

• Modeling for Small Satellite Electric Propulsion
• Smart and Autonomous Systems for Space
• Omni-Optical Antennas and Optical-Multiple-Access Technologies for Free-Space Near-Earth Satellite Communication
• Modeling Shock Layer Radiation and Chemical Kinetics for Planetary Entry
• Physical and Mechanistic Modeling of the Self-Reacting Friction Stir Welding Process
• Smart Tribological Mechanical Systems for Extreme Temperature Space Environments

Awards: Up to $500,000
Notice of Intent: Not Required
Proposal Deadline: June 20, 2018
Contact: Claudia M. Meyer, NASA Space Technology Research Grants Program Exec Phone: 202-358-4458 Fax: 202-358-3602

Grant Program: Advanced Information Systems Technology
Agency: NASA NNH18ZDA001N-AIST
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BC0D379E0-B4A8-6B97-7B0C-7F5409CD2442%7D&path=open&method=init
Brief Description: Advanced information systems play a critical role in the collection, handling, and management of the vast amounts of Earth science data, both in space and on the ground. Advanced computational systems and technology concepts that enable the capture, transmission, and dissemination of terabytes of data are essential to NASA's vision of a distributed observational network. ESTO's Advanced Information Systems Technology (AIST) program employs an end-to-end approach to develop these critical technologies—from the space segment, where the information pipeline begins, to the end user, where knowledge is advanced. Two major AIST thrusts are in progress: (1) support to a new observing strategy involving the integration of observations from orbital, airborne and in situ instruments along with models into a sensor web to advance the state of the art understanding of physical processes and natural phenomena, and (2) Analytic Centers focusing on a scientific investigation, where data from many sources, computational resources and tools are harmonized to improve the ability of the investigator to discover new knowledge.
Awards: Standard Grants
Notice of Intent: TBD
Proposal Deadline: TBD
Contact: Michael M. Little Earth Science Technology Office Telephone: (301) 286-7404 Email: Michael.M.Little@nasa.gov

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National Endowment of Humanities

Grant Program: Research and Development
Agency: National Endowment of Humanities

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

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

This program recognizes that finding solutions to complex problems often requires forming interdisciplinary project teams, bringing together participants with expertise in the humanities; in preservation; and in information, computer, and natural science.

All projects must demonstrate how advances in preservation and access would benefit the cultural heritage community in supporting humanities research, teaching, or public programming.

Awards: Up to $350,000

Research and Development offers two funding tiers in order to address projects at all stages of development and implementation.

Tier I: Planning and Basic Research

Tier I provides awards up to $75,000 for a period of performance of one to two years. This level supports the following activities:

- planning and preliminary work for large-scale research and development projects; and
- stand-alone basic research projects, such as case studies, experiments, or the development of methods, models, and tools.

Tier II: Advanced Implementation

Tier II provides awards up to $350,000 for a period of performance of one to three years. This level supports projects at a more advanced stage of implementation for the following activities:

- the development of standards, practices, methodologies, or workflows for preserving and creating access to humanities collections; and
- applied research addressing preservation and access issues concerning humanities collections.

Proposal Deadline: June 7, 2018

Contact: Contact the staff of NEH's Division of Preservation and Access at preservation@neh.gov and 202-606-8570. Applicants who are deaf or hard of hearing can contact NEH via Federal Relay (TTY users) at 800-877-8399.

Grant Program: Digital Humanities Advancement Grants

Agency: National Endowment of Humanities

Website: https://www.neh.gov/grants/odh/digital-humanities-advancement-grants

Brief Description: Digital Humanities Advancement Grants (DHAG) support digital projects throughout their lifecycles, from early start-up phases through implementation and long-term sustainability. Experimentation, reuse, and extensibility are hallmarks of this program, leading to innovative work that can scale to enhance scholarly research, teaching, and public programming in the humanities. This program is offered twice per year. Proposals are welcome for digital initiatives in any area of the humanities.

Through a special partnership with NEH, the Institute of Museum and Library Services (IMLS) anticipates providing additional funding to this program to encourage innovative collaborations between museum or library professionals and humanities professionals to advance preservation of, access to, use of, and engagement with digital collections and services. IMLS and NEH may jointly fund some DHAG projects that involve collaborations with museums and/or libraries.

Digital Humanities Advancement Grants may involve

- creating or enhancing experimental, computationally-based methods, techniques, or infrastructure that contribute to the humanities;
- pursuing scholarship that examines the history, criticism, and philosophy of digital culture and its impact on society, or explores the philosophical or practical implications and impact of digital humanities in specific fields or disciplines; or
- revitalizing and/or recovering existing digital projects that promise to contribute substantively to scholarship, teaching, or public knowledge of the humanities.

Awards: Up to $375,000
Proposal Deadline: June 5, 2018
Contact: Contact the Office of Digital Humanities (ODH) via e-mail at odh@neh.gov.

National Institute for Health Care Management Foundation

Grant Program: Grand Challenges Exploration (GCE)
Agency: National Institute for Health Care Management Foundation
Website: https://www.nihcm.org/grants/research-grants
Brief Description: NIHCM Foundation supports innovative investigator-initiated research with high potential to inform improvements to the U.S. health care system. Projects must advance the existing knowledge base in the areas of health care financing, delivery, management and/or policy. In the first six years of the program, we have awarded nearly $1.7 million to support 30 studies.
Awards: NIHCM Foundation is making approximately $400,000 available and expects to fund 7 to 8 studies from this amount.
Proposal Deadline: Interested researchers must submit a brief letter of inquiry (LOI) outlining their study idea by 5:00 PM EDT on July 9, 2018.
Contact: For questions related to this initiative, please contact Julie Schoenman at 202-296-4192 or nihcm[at]nihcm.org. Please specify "RESEARCH GRANT QUESTION" in the email subject line.

American Diabetes Association

Grant Program: Pathway Program
Agency: American Diabetes Association
Website: https://professional.diabetes.org/meetings/pathway-stop-diabetes%C2%AE
Brief Description: ***The American Diabetes Association "Pathway" Program"*** invites nominations from a "broad range of disciplines, including biology, chemistry, engineering, mathematics and physics. The Association encourages nomination of individuals from diverse backgrounds, including minorities that are underrepresented in research."
Pathway seeks to bring new investigators and new perspectives to diabetes research. Supporting scientists with different backgrounds and experience is critical to achieving that objective. Pathway accepts nominations for exceptional investigators with medical and scientific backgrounds who propose innovative basic, clinical, translational, behavioral, epidemiological and health services research relevant to any type of diabetes, diabetes-related disease state or complication. Pathway solicits nominations for candidates in all disciplines as applied to diabetes including medicine, biology, chemistry, computing, physics, mathematics and engineering. In addition, nomination of scientists from diverse backgrounds, including minority groups that are underrepresented in biomedical research, is strongly encouraged.
Three Award Categories: –
· Post-docs,
· Early Career

· Established Investigators.

Limited Nomination: NJIT can submit only one nomination**.**

Draft nominations should be sent to Eric Blitz (eric.blitz@njit.edu) and Atam Dhawan (dhawan@njit.edu) by June 1 for internal evaluation.

Proposal Deadline: July 2, 2018 at 4:00 p.m. CST.

Streamlyne Question of the Week

Question: **Can I change project start and end dates after I have submitted for approval?**

Answer: When a proposal is routed for approval certain information is locked to ensure that the information at the various approval levels (department, college, and university) remains constant. This is intended to guarantee that the authority of academic leadership (e.g., chairs and deans) is recognized in the system.

The start and end dates are included in the data that is locked. If you need to change the dates of a proposal already submitted for approval, you will have to recall the proposal, make the necessary changes, and resubmit for approval.

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

Streamlyne Contacts

Two user manuals on Streamlyne have been added on the Streamlyne website 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.

How-to-do-Videos

New "How to Do" videos have been posted on the research website http://www5.njit.edu/research/streamlyne/. These videos show step-by-step process on the following tasks:

- How to Begin Proposal Submission in Streamlyne
- How to Input Proposal Budget
- How to Process Approvals
- How to Upload Proposal Attachments
- How to Search for a Proposal that is in Route
- Difference Between "Prime Sponsor Code" and "Sponsor Code"
- How to Select an RR Budget, RR Sub-award or Modular Budget
- How to Add a Student/Summary
- Participant Support Categories

- Supplies Specific Category Materials
- How to Create a Modular Budget

Also, the following links may be helpful**:**
- Streamlyne Benefits for Proposal Submission and Grant Management
- Grants.gov Presentation on Online Proposal Submission Systems
- Streamlyne Newsletter V2017.1
- Streamlyne FAQs

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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