NJIT Research Newsletter

Issue: ORN-2019-41

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 https://research.njit.edu/funding-opportunities .

Special Announcements

DOD Undersecretary Addresses Academic Community on Science & Security

On October 10, Michael D. Griffin, Department of Defense (DOD) Undersecretary for Research and Engineering, released a **letter** addressed to the academic community describing threats to our collaborative research environment by foreign governments and outlining steps taken by DOD and other federal agencies to protect the integrity of the research enterprise. The letter also highlights ongoing activities by APLU and other higher education associations to mitigate threats, including the **Effective Policies and Practices document** released by APLU (American Public and Land-Grant Universities) of and AAU (Association of American Universities).

The following is the selected text from the latter posted on the website https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Ascds%3AUS%3Ae3d35aaf-e22d-4396-af55-444391a628c9 :

For decades, scientists at universities and research centers, supported by the Department of Defense (DoD), have made ground-breaking scientific discoveries that underpinned dramatic commercial and national security advances, significantly improving the lives of citizens here and abroad. DoD recognizes the contribution of research integrity principles, such as the free exchange of ideas, transparency. and collaboration across research communities as critical to our mutual success. Yet today, the ability to make similar advances is at risk. and research integrity is jeopardized through foreign governments' exploitation that intentionally target U.S. and allied partner research and intellectual capital.

We must find ways to protect research integrity that has contributed to the creation of the finest research institutions in the world and allows us to attract the necessary talent to maintain our economic and national security. The principles of integrity, openness, reciprocity, merit-based competition, and transparency are the foundation of American innovation. The theft of controlled information and unethical diversion of intellectual capital threatens both the American economy and the security of our nation. I request your assistance to preserve the long-standing norms and ethical behaviors that have benefited our research institutions.

The challenge of protecting the integrity of our research enterprise is a national priority. ln his September 16, 2019. letter1 to the research community. Dr. Kelvin Droegemeier, Director of the White House Office of Science and Technology Policy (OSTP). described a new OSTP-led interagency Joint Committee on the Research Environment (JCORE). DoD is an active participant in JCORE, and in its sub-committee on Research Security, which is initially focused on coordinating four lines of Federal effort: coordinating outreach and engagement· disclosure requirements for participation in federally funded research; best practices for academic research institutions; and methods for identification, assessment, and management of risk. This work will help agencies that fund Federal research to develop common standards for identifying and adjudicating conflicts of interest and conflicts of commitment from these disclosures. It will also help agencies that fund Federal research to clarify consequences for failing to make these disclosures.

NJIT is reviewing the documents and regulations released by DoD and White House and will send out notifications and announcements on any new protocols and requirements on international research contracts, collaborations and related matters.

FastLane and Research.gov will be unavailable from Friday, November 8 at 8:00 PM EST until Tuesday, November 12 at 6:00 AM EST

The National Science Foundation (NSF) is migrating its business applications to a modern and flexible platform from November 8 at 8:00 PM EST through November 12 at 6:00 AM EST. As part of this effort, NSF will also upgrade the alpha-numeric character set used by the FastLane and Research.gov systems to correct text errors, such as special characters displaying as question marks ("?") in proposals and project reports. This migration has been scheduled over the Veteran's Day holiday weekend to minimize the impact of the systems downtime on the research community and NSF staff.

During this outage, there will be no access to these websites, proposals cannot be submitted in FastLane or Research.gov, and project reports and cash requests cannot be submitted in Research.gov. However, previously saved information and uploaded documents in FastLane and Research.gov, including in-progress proposals and project reports, will be accessible after the migration is completed.

We encourage you to share this information with your colleagues. For system-related questions, please contact the NSF Help Desk at 1-800-381-1532 or rgov@nsf.gov . Any policy-related questions should be directed to policy@nsf.gov.

NJIT Panel Discussion on NSF CAREER Award

November 4, 2019; 2.30 PM – 4.00 PM

Ballroom B, Campus Center

Information about NSF CAREER Award Proposal Preparation

All faculty interested in NSF CAREER award submission are invited to 2019 NJIT Panel Discussion on NSF CAREER Award event to be held on November 4, 2019 in Ballroom B, Campus Center from 2.30 PM – 4.00 PM. The event will highlight the requirements for NSF CAREER award and discuss the best practices on proposal preparation with NJIT faculty members who have recently received the prestigious NSF CAREER award.

Faculty panelists include Mengyan Li (Chemistry and Environmental Sciences), Brittany Froese Hamfeldt (Mathematical Sciences), Sagnik Basuray (Chemical and Material Engineering) and Ioannis Koutis (Computer Sciences). The agenda for the panel discussion session is as follows:

Agenda:
2.30 PM - 2.35 PM: Introductions of Panelists: Atam Dhawan
2.35 PM – 2.45 PM; Overview of the NSF CAREER program: Atam Dhawan
2.45 PM - 3.30 PM: Panel Discussion on Proposal Preparation: Mengyan Li, Briitany Froese Hamfeldt, Sagnik Basuray, Ioannis Koutis
(Sharing experiences followed by questions on Best practices and suggestions on critical parts of the proposal including the broader impact section)
3.30 PM- 4.00 PM: Q&A from Audience and Discussion

Light Refreshments will be provided.

2019 NJIT Research Institutes, Centers and Laboratories Showcase and President's Forum
November 14, 2019; Ballroom A/B, Campus Center; 10.00 AM – 2.00 PM

We are pleased to announce 2019 NJIT Research Institutes, Centers and Laboratories Showcase and President's Forum on November 14, 2019 from 10.00 AM to 2.00 PM in Ballroom A/B at the Campus Center. Dr. Vipin Chaudhary, Program Director, National Science Foundation and SUNY Empire Innovation Professor, State University of New York (SUNY) – Buffalo will be the Keynote Speaker at the President's Forum and 2019 NJIT Research Institutes, Centers and Laboratories Showcase.

Following the *2020 Vision* strategic plan, NJIT research enterprise has grown significantly with a total research expenditure of nearly $170 million in FY2019. With the recent growth in research and development synergy, NJIT has been elevated to an "R1" institution by the Carnegie Classification of Institutions of Higher Education. The 2019 NJIT Research Institutes, Centers and Laboratories Showcase will feature more than 110 research institutes, centers and specialized laboratories at the President's Forum on November 14, 2019.

All faculty, researchers and students are invited to join us at the 2019 NJIT Research Institutes, Centers and Laboratories Showcase to network and celebrate the research synergy and accomplishments of NJIT faculty, students and researchers. Please encourage your students, post-docs and researchers to attend and participate. The program agenda is as follows.

Agenda

10.00 AM – 10.15 AM:	Welcome Remarks and Introduction to the Keynote Speaker Atam Dhawan, Senior Vice Provost for Research Announcement of NJIT Institute of Data Science (IDS) IDS Vision: Dr. David Bader, Distinguished Professor and Director, IDS
10.15 AM – 11.15 AM:	President's Forum Keynote Talk: Four Decades of HPC: Architectures, Programming Environments, Systems, and Applications Speaker: Dr. Vipin Chaudhary, Program Director, National Science Foundation and SUNY Empire Innovation Professor, State University of New York (SUNY) – Buffalo
11.15 AM – 12.15 PM:	Networking and e-Poster Session-1
12.15 PM – 1.00 PM:	Lunch and Networking Session
1.00 PM – 2.00 PM:	Networking and e-Poster Session-2

Keynote Talk: Four Decades of HPC: Architectures, Programming Environments, Systems, and Applications

Speaker: Dr. Vipin Chaudhary, Program Director, National Science Foundation and SUNY Empire Innovation Professor, State University of New York (SUNY) – Buffalo

Abstract: High performance computing (HPC) impacts every aspect of scientific endeavor. In this talk I will cover various HPC problems and applications over four decades from my journey in academia and industry. These include new multi-(many) core processors and interconnection networks, parallelizing compilers for non-uniform dependences, OpenMP for heterogeneous processors, Virtual Machines for HPC, multi-threaded embedded operating systems, accelerating bioinformatics algorithms using FPGAs and GPUs, hyper-converged computer systems and variable redundancy for flash storage arrays, and machine learning. I will describe applications of HPC in surgery and medical diagnosis and the future challenges in HPC. Additionally, I will discuss some of the new funding opportunities within the NSF Office of Advanced Cyberinfrastructure.

Speaker's Bio: A veteran of High Performance Computing (HPC), Dr. Chaudhary has been actively participating in the science, business, government, and technology innovation frontiers of HPC for over three decades. His contributions range from heading research laboratories and holding executive management positions, to starting new technology ventures. Vipin Chaudhary is the SUNY Empire Innovation Professor of Computer Science and Engineering at SUNY Buffalo, and the co-founder of the Center for Computational and Data-Enabled Science and Engineering. He is currently on an IPA appointment at the National Science Foundation where he is serving as a Program Director in the NSF Office of Advanced Cyberinfrastructure. He co-leads the National Strategic Computing Initiative from NSF for the United States and is in the working group of the Quantum Leap Initiative and the I-Corps Program. He is also in the working group of the Interagency Modeling and Analysis Group. He cofounded Scalable Informatics, a leading provider of pragmatic, high performance software-defined storage and compute solutions to a wide range of markets, from financial and scientific computing to research and big data analytics. From 2010 to 2013, Dr. Chaudhary was the Chief Executive Officer of Computational Research Laboratories (CRL) where he grew the company globally to be an HPC cloud and solutions leader before selling it to Tata Consulting Services. Prior to this, as Senior Director of Advanced Development at Cradle Technologies, Inc., he was responsible for advanced programming tools for multi-processor chips. He was also the Chief Architect at Corio Inc., which had a successful IPO in July 2000 and later sold to IBM.

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

Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: Biology Integration Institutes (BII); Campus Cyberinfrastructure (CC*); Macrosystems Biology and NEON-Enabled Science (MSB-NES); Transitions to Excellence in Molecular and Cellular Biosciences Research (Transitions); National Artificial Intelligence (AI) Research Institutes; Division of Environmental Biology (DEB); Transport Phenomena Research at the International Space Station to Benefit Life on Earth
NIH: NCMRR Early Career Research Award (R03 Clinical Trial Optional); NINDS Ruth L. Kirschstein National Research Service Award (NRSA) for Training of Postdoctoral Fellows (F32); NIH Blueprint for Neuroscience Research Education Program on Translational Devices (R25); NIDCR Small Grant Program for New Investigators (R03)
Department of Defense/US Army/DARPA/ONR: NRL Long Range Broad Agency Announcement (BAA) for Basic and Applied Research; DSO Office-wide Broad Agency Announcement
Department of Transportation: Grants or Research Fellowship (GRF)
Department of Agriculture: Solid Waste Management Grant Program
Department of Labor: Apprenticeships: Closing the Skills Gap
EPA: Solid Waste Recycling Enhancement Act (REA) Higher Education Research Grant Program; People, Prosperity and the Planet (P3) Student Design Competition
Department of Energy: Generating Electricity Managed by Intelligent Nuclear Assets (GEMINA); Performance-Based Energy Resource Feedback, Optimization, And Risk Management; Stewardship Science Academic Alliances (SSAA) Program
NASA: Heliophysics System Observatory Connect; Research Opportunities in Space and Earth Sciences: Astrophysics Science SmallSat Studies; NASA Space Technology Graduate Research Opportunities; Use of the NASA Physical Sciences Informatics System; Living With a Star Science; Space Weather Science Applications Operations 2 Research
National Endowment of Humanities: Collaborative Research
Brain Research Foundation: Brain Research Foundation (BRF) Seed Grant

Recent Research Grant and Contract Awards

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

PI: Louis Lanzerotti (PI)
Department: Center for Solar Terrestrial Research
Grant/Contract Project Title: Van Allen Probes RBSPICE Phase E Operations – Extended Missions I, II, III, and Phase F (ARDES)
Funding Agency: NASA
Duration: 07/15/16-07/31/20

PI: Tara Alvarez (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: High Definition Transcranial Direct Current Stimulation (HD-tDCS) for Sensory Deficits in Traumatic Brain Injury
Funding Agency: U.S. Department of Defense (Army - AMRMC)
Duration: 09/30/17-09/29/20

PI: Laurent Simon (PI)
Department: Chemical and Material Engineering
Grant/Contract Project Title: A Multiscale Simulation Toolkit for Computational Pharmacology of Trans/Intradermally Administered Compounds in Healthy and Diseased Populations
Funding Agency: NIH
Duration: 09/01/19-08/31/20

In the News…

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

Rising Above the Gathering Storm: The National Academies was asked by Senator Lamar Alexander and Senator Jeff Bingaman of the Committee on Energy and Natural Resources, with endorsement by Representative Sherwood Boehlert and Representative Bart Gordon of the House Committee on Science, to respond to the following questions:

What are the top 10 actions, in priority order, that federal policymakers could take to enhance the science and technology enterprise so that the United States can successfully compete, prosper, and be secure in the global community of the 21st century? What strategy, with several concrete steps, could be used to implement each of those actions?

The National Academies created the Committee on Prospering in the Global Economy of the 21st Century to respond to this request. The charge constitutes a challenge both daunting and exhilarating: to recommend to the nation specific steps that can best strengthen the quality of life in America—our prosperity, our health, and our security. The committee has been cautious in its analysis of information. The recommendations include:

1. 10,000 TEACHERS, 10 MILLION MINDS, AND K–12 SCIENCE AND MATHEMATICS EDUCATION
2. SOWING THE SEEDS THROUGH SCIENCE AND ENGINEERING RESEARCH
3. BEST AND BRIGHTEST IN SCIENCE AND ENGINEERING HIGHER EDUCATION
4. INCENTIVES FOR INNOVATION

A full report on the Challenges and Recommendations is available on the website https://www.nap.edu/catalog/11463/rising-above-the-gathering-storm-energizing-and-employing-america-for

White House Releases Strategic Implementation Plan on STEM Diversity: The Strategic Plan presents a vision for a future where all Americans will have lifelong access to high quality STEM education and the United States will be the global leader in STEM literacy, innovation, and employment. It is intended to serve as a "North Star" for the broader STEM community as it collectively charts a course

for the Nation's success and is responsive to the requirements of Section 101 of the America COMPETES Reauthorization Act of 2010.

Three goals are being actively pursued to support the Strategic Plan's overarching vision:

- Build Strong Foundations for STEM Literacy by ensuring that every American has the opportunity to master basic STEM concepts and to become digitally literate.
- Increase Diversity, Equity, and Inclusion in STEM and provide all Americans with lifelong access to high-quality STEM education, especially those historically underserved and underrepresented in STEM fields and employment.
- Prepare the STEM Workforce for the Future—both college-educated STEM practitioners and those working in skilled trades that do not require a four-year degree—by creating authentic learning experiences that encourage and prepare learners to pursue STEM careers.

The Strategic Plan is organized around four pathways, representing a cross-cutting set of approaches to improve STEM education that will help fulfill its vision and achieve its three goals:

- Develop and Enrich Strategic Partnerships – Strengthen relationships between educational institutions, industry, community organizations to leverage resources for the purpose of providing the student with meaningful learning opportunities.
- Engage Students where Disciplines Converge – Draw on knowledge and methods across disciplines to solve complex, real world problems in STEM using innovation, creativity, and initiative.
- Build Computational Literacy – Design integrated approaches to teaching and learning computational thinking and promote digital literacy and cyber safety.
- Operate with Transparency and Accountability – Develop and apply metrics that assess progress in meaningful ways and disseminate them to external stakeholders.

Broader Partnerships with Academia: The Army Research Laboratory and the Army Research Office are tapping universities "as never before," seeking access to knowledge and innovation that enable the Department of Defense (DOD) "to gain back or widen the military's advantage in combat power across multiple domains," reports the Defense Media Network. "ARL's Wendy Leonard said the Army is trying to 'bring together the government labs, academic institutions, and the private sector to form a global collaborative network.'" Leonard is the program manager for ARL's Open Campus initiative, a framework launched in 2014 to connect ARL scientists and engineers with outside researchers and research institutions."

The Committee on Equal Opportunities in Science and Engineering (CEOSE) at NSF: The National Science Foundation (NSF) is committed to its investment in broadening participation in STEM science and learning. In fiscal year (FY) 2018, the Foundation awarded slightly over $1 billion1 to broadening participation programs. NSF's 2018-2022 strategic plan articulates a vision of new opportunities for frontier research with a commitment to ensuring that talented individuals from all sectors of society have access to STEM learning. The plan states, "We endeavor to support outstanding researchers and innovative thinkers from across our Nation's diversity of regions, types of organizations, and demographic groups." NSF has shown this commitment through the NSF 10 Big Ideas, especially the NSF INCLUDES (Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science) portfolio, which catalyzes novel approaches to broadening participation in STEM by incentivizing the building of collaborative infrastructures that will proactively seek, and effectively develop STEM talent in academia, government, and the nonprofit sectors and groups in the nation. Other commendable efforts made by NSF include: implicit-bias training for reviewers; the new terms and conditions to address sexual harassment; the Directorate for Geosciences' (GEO)

Opportunity for Leadership in Diversity: An Ideas Lab activity;2 the Directorate for Computer and Information Science and Engineering's (CISE) Dear Colleague Letter: Pursuing Meaningful Actions in Support of Broadening Participation in Computing (NSF 17-110);3 the Directorate for Education and Human Resources' (EHR) Improving Undergraduate STEM Education: Hispanic-Serving Institution (HSI) program;4 and the Historically Black Colleges and Universities (HBCUs) Excellence in Research (EiR) and Tribal Enterprise Advancement Centers efforts. While finding a lot praise in the National Science Foundation's efforts to broaden participation, the Committee on Equal Opportunities in Science and Engineering (CEOSE) has some ideas for improvement. "Developing community-based research initiatives that are carried out with community members with a focus on local scientific problems is a promising strategy to help achieve the interrelated goals of full inclusion, better S&E and a better society," the committee says in its latest **biennial report to Congress.** Full report is posted on the website https://www.nsf.gov/od/oia/activities/ceose/reports/CEOSE_ReportToCongress_RP_FVmp_508.pdf

NSF Report on Science and Engineering Research Expenditures: Global R&D activity continues to be concentrated in North America, Europe, and the East and Southeast Asia and South Asia regions (**Figure O-5**). Among individual countries, the United States is by far the largest R&D performer, followed by China—whose R&D spending exceeded that of the EU total—and Japan (**Figure O-6**). Together, the United States, China, and Japan accounted for over half of the estimated $1.9 trillion in global R&D in 2015. Germany is fourth, at 6%. South Korea, France, India, and the United Kingdom make up the next tier of performers—each accounting for 2%–4% of the global R&D total. A notable trend over the past decade has been the growth in R&D spending in the regions of East and Southeast Asia and South Asia compared to the other major R&D-performing areas. China continues to display the most vigorous R&D growth, accounting for nearly one-third of the global increase in R&D spending over the 2000–15 period. Despite growth in nominal spending on R&D, differences in growth rates across the world led both the United States and Europe to experience substantial declines in their shares of global R&D (from 37% to 26% in the United States and from 27% to 22% in Europe between 2000 and 2015). During the same period, the economies of East and Southeast Asia—including China, Japan, Malaysia, Singapore, South Korea, Taiwan, and India—saw an increase in their combined global share from 25% to 40%, thus exceeding the respective U.S. and the European R&D shares in 2015.

National Center for Science and Engineering Statistics (NSF) Business R&D Performance in the United States Reached $400 Billion in 2017, a 6.8% Increase from 2016. "The U.S. federal government was the chief source of external funding for R&D (also referred to as R&D paid for by others) across all industries. Of the $61 billion paid for by others, the federal government accounted for $24 billion, most of which came from the Department of Defense ($17 billion)."

R&D expenditures by U.S. colleges and universities totaled $71.8 billion in 2016. The vast majority (94%) of this spending was in S&E fields (Table 5-1). The chapter will also present Higher Education Research and Development Survey (HERD) data that are not distributed by field. Such data include institutions' estimates of spending for basic research, applied research, and development (Table 5-2; Appendix Table 5-1); data on R&D funds that universities and colleges pass through to other institutions (or receive from others); detail on institutionally financed R&D; and the types of costs universities incur as they conduct R&D.

Full report is posted on the website https://www.nsf.gov/statistics/2018/nsb20181/report/sections/overview/introduction

---

Webinar and Events

Event: PAESMEM Applicant Webinars
Sponsor: NSF
When: October 31, 2019 4:00 PM - 5:00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=299252&org=NSF
Brief Description: NSF is offering a webinar on October 31, 2019 for applicants to the Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM).
To Join the Webinar: Click on this link to register! https://paesmem.net/webinar

Event: Regenerative medicine today: Are diabetes and vascular disease treatments ready for the clinic?
Sponsor: Science AAAS
When: October 30, 2019; 12.00 PM – 1.00 PM
Website: https://view6.workcast.net/register?cpak=4046452219959424&referrer=Blast3&et_rid=285476668&et_cid=3038712
Brief Description: Regenerative medicine—which involves regrowing damaged or dysfunctional cells, tissues, and organs, in order to treat and cure human disease—holds great promise. Discoveries in stem cell research and tissue engineering as well as advances in regulatory and industry support have brought regenerative medicine treatments closer than ever to the clinic. Two areas showing particular potential are diabetes and vascular disease. Whether acquired or congenital, diabetes afflicts millions of people worldwide and presents a tremendous burden both in terms of physical deterioration and loss of economic capacity. Current treatments rely mainly on lifetime injections of exogenous hormones and palliative treatments with pharmaceuticals, neither of which can address the lack of properly functioning beta cells in the pancreas. Similarly, vascular diseases are among the leading causes of mortality and morbidity. The ability to generate new, clinical-grade vascular tissue is critical to the long-term treatment of complications arising from ischemic injury, stroke, aneurisms, retinopathy, and other acute and chronic vascular conditions; significant progress has been made in using stem cell sources to produce this tissue. But what is needed to get such potentially transformative treatments over the finish line?
To Join the Webinar: Please register at the above URL.

Event: National Artificial Intelligence (AI) Research Institutes Program Webinar
Sponsor: NSF
When: November 7, 2019; 3.30 PM – 4.30 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=299439&org=NSF
Brief Description: Artificial Intelligence (AI) has advanced tremendously and today promises personalized healthcare; enhanced national security; improved transportation; and more effective education, to name just a few benefits. Increased computing power, the availability of large datasets and streaming data, and algorithmic advances in machine learning (ML) have made it possible for AI development to create new sectors of the economy and revitalize industries. Continued advancement, enabled by sustained federal investment and channeled toward issues of national importance, holds the potential for further economic impact and quality-of-life improvements. The 2019 update to the National Artificial Intelligence Research and Development Strategic Plan, informed by visioning activities in the scientific community as well as interaction with the public, identifies as its first strategic objective the need to make long-term investments in AI research in areas with the potential for long-term payoffs in AI. The goal of this program is to enable multidisciplinary, multi-stakeholder research on large-scale, long-time-horizon challenges in areas of national importance, through a set of new AI Research Institutes.

This webinar will introduce the program, describe funding opportunities for both planning grants and full institutes, and address questions about the program.

The National Artificial Intelligence (AI) Research Institutes program is supported by multiple agencies of the federal government including the National Science Foundation (NSF), U.S. Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA), U.S. Department of Homeland Security (DHS) Science & Technology Directorate (S&T), U.S. Department of Transportation (DOT) Federal Highway Administration (FHWA), and U.S. Department of Veterans Affairs (VA). This webinar will cover the National Artificial Intelligence Research Institutes solicitation NSF 20-503, submission requirements and program updates.

To Join the Webinar: To view the webinar and presentation, please register at: https://nsf2.webex.com/nsf2/onstage/g.php?MTID=e8d43321cac0c23aa22c497e720b8afce

Event: Institute for Space Weather Sciences: Distinguished Speakers Series
Title: Journey to the Sun
Speaker: Dr. Nicola Fox, NASA
Place: 112 Eberhardt Hall, NJIT
Time: Monday, Nov. 11, 2019; 11:45 am to 1:00 pm (Refreshment at 11:30)
Abstract: NASA Heliophysics research studies a vast system stretching from the Sun to Earth to far beyond the edge of the planets. Studying this system – much of it driven by the Sun's constant outpouring of solar wind -- not only helps us understand fundamental information about how the universe works, but also helps protect our technology and astronauts in space. NASA seeks knowledge of near-Earth space, because -- when extreme -- space weather can interfere with our communications, satellites and power grids. The study of the Sun and space can also teach us more about how stars contribute to the habitability of planets throughout the universe. Mapping out this interconnected system requires a holistic study of the Sun's influence on space, Earth and other planets. NASA has a fleet of spacecraft strategically placed throughout our heliosphere: -- from Parker Solar Probe at the Sun observing the very start of the solar wind, to satellites around Earth, to the farthest human-made object, Voyager, which is sending back observations on interstellar space; -- all helping us untangle the effects of the star we live with.
Brief Bio: Dr. Nicola Fox is the Heliophysics Division Director in the Science Mission Directorate at NASA Headquarters in Washington, DC. Until August 2018, Fox worked at the Applied Physics Lab at the Johns Hopkins University where she was the chief scientist for Heliophysics and the project scientist for NASA's Parker Solar Probe. Fox served as the deputy project scientist for the Van Allen Probes, and the operations scientist for the International Solar Terrestrial Physics program. Fox received her BS in Physics and PhD in Space and Atmospheric Physics from the Imperial College of Science, Technology and Medicine in London. She received an MS in Telematics and Satellite Communications from the University of Surrey.

Event: NSF Distinguished Lecture Series in Mathematical and Physical Sciences for 2019-20
Sponsor: NSF
When: Various; Please see below.
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=299152&org=NSF
Brief Description: These lectures will be held at the National Science Foundation, 2415 Eisenhower Ave., Alexandria, VA 22314. Advance sign-up requests are required for preparation of visitor passes by emailing the contact below. Guidelines for visiting NSF are at https://www.nsf.gov/about/visit/
December 19, 2019 2:00 PM to December 19, 2019 3:00 PM
January 13, 2020 2:00 PM to January 13, 2020 3:00 PM
February 13, 2020 2:00 PM to February 13, 2020 3:00 PM
March 23, 2020 2:00 PM to March 23, 2020 3:00 PM

May 4, 2020 2:00 PM to May 4, 2020 3:00 PM
June 11, 2020 2:00 PM to June 11, 2020 3:00 PM
To Join the Webinar: Please register at the above URL.

Limited Submission Grant Opportunities

Limited Submission Internal Competition for NSF PFI and MRI Programs

Grant Program: Partnerships for Innovation (PFI)
Agency: National Science Foundation NSF 19-506
RFP Website: https://www.nsf.gov/pubs/2019/nsf19506/nsf19506.htm
Brief Description: The Partnerships for Innovation (PFI) Program within the Division of Industrial Innovation and Partnerships (IIP) offers researchers from all disciplines of science and engineering funded by NSF the opportunity to perform translational research and technology development, catalyze partnerships and accelerate the transition of discoveries from the laboratory to the marketplace for societal benefit.

PFI has five broad goals, as set forth by the American Innovation and Competitiveness Act of 2017 ("the Act", S.3084 — 114th Congress; Sec. 602. Translational Research Grants): (1) identifying and supporting NSF-sponsored research and technologies that have the potential for accelerated commercialization; (2) supporting prior or current NSF-sponsored investigators, institutions of higher education, and non-profit organizations that partner with an institution of higher education in undertaking proof-of-concept work, including the development of technology prototypes that are derived from NSF-sponsored research and have potential market value; (3) promoting sustainable partnerships between NSF-funded institutions, industry, and other organizations within academia and the private sector with the purpose of accelerating the transfer of technology; (4) developing multi-disciplinary innovation ecosystems which involve and are responsive to the specific needs of academia and industry; (5) providing professional development, mentoring, and advice in entrepreneurship, project management, and technology and business development to innovators. This solicitation offers two broad tracks for proposals in pursuit of the aforementioned goals:

The **Technology Translation (PFI-TT) track** offers the opportunity to translate prior NSF-funded research results in any field of science or engineering into technological innovations with promising commercial potential and societal impact. PFI-TT supports commercial potential demonstration projects for academic research outputs in any NSF-funded science and engineering discipline. This demonstration is achieved through proof-of-concept, prototyping, technology development and/or scale-up work. Concurrently, students and postdoctoral researchers who participate in PFI-TT projects receive education and leadership training in innovation and entrepreneurship. Successful PFI-TT projects generate technology-driven commercialization outcomes that address societal needs.

The **Research Partnerships (PFI-RP) track** seeks to achieve the same goals as the PFI-TT track by supporting instead complex, multi-faceted technology development projects that are typically beyond the scope of a single researcher or institution and require a multi-organizational, interdisciplinary, synergistic collaboration. A PFI-RP project requires the creation of partnerships between academic researchers and third-party organizations such as industry, non-academic research organizations, federal laboratories, public or non-profit technology transfer organizations or other universities. Such partnerships are needed to conduct applied research on a stand-alone larger project toward commercialization and societal impact. In the absence of such synergistic partnership, the project's likelihood for success would be minimal.

The intended outcomes of both PFI-TT and PFI-RP tracks are: a) the commercialization of new intellectual property derived from NSF-funded research outputs; b) the creation of new or broader collaborations with industry (including increased corporate sponsored research); c) the licensing of NSF-funded research outputs to third party corporations or to start-up companies funded by a PFI team; and d) the training of future innovation and entrepreneurship leaders.

Limit on Number of Proposals per Organization: There is no limit on the number of PFI-TT proposals an organization may submit to a deadline of this solicitation. However, an organization may not submit more than one (1) new or resubmitted PFI-RP proposal to a deadline of this solicitation. This eligibility constraint will be strictly enforced. If an organization exceeds this limit, the first PFI-RP proposal received will be accepted, and the remainder will be returned without review. An organization may not receive more than two (2) awards from a submission deadline of this solicitation.

Internal Competition: If you are interested in submitting PFI-RP track proposal, please submit a pre-proposal to your college dean by October 15, 2019 using the following format. Each college dean is requested to forward maximum one pre-proposal with college recommendation to Atam Dhawan, SVPR by **October 28, 2019**. The selection of one institutional PFR-RP proposal will be announced by November 1, 2019. Institutional pre-proposal should follow the following format:

1. Cover Page: Title and list of all key investigators (including collaborators) with their affiliations and roles
2. Project Summary (max 1 page)
3. Intellectual Merit and Broader Impact (max 1 page)
4. Project Description: Significance, Innovation, Approach and Partnership with Management Plan (max 3 pages)
5. Budget including subcontracts
6. NSF format Biosketch for PI and Co-PIs

Awards: Standard Grants. Anticipated Funding: $20,000,000; Number of Awards: 55-65
Letter of Intent: Not Required
Proposal Submission Deadline: January 08, 2020
Contacts: Jesus V. Soriano, telephone: (703) 292-7795, email: jsoriano@nsf.gov

---

Grant Program: NSF Major Research Instrumentation Program: (MRI)
Agency: National Science Foundation NSF 18-513
RFP Website: https://www.nsf.gov/pubs/2018/nsf18513/nsf18513.htm
Brief Description: The Major Research Instrumentation (MRI) Program serves to increase access to multi-user scientific and engineering instrumentation for research and research training in our Nation's institutions of higher education and not-for-profit scientific/engineering research organizations. An MRI award supports the acquisition or development of a multi-user research instrument that is, in general, too costly and/or not appropriate for support through other NSF programs.

MRI provides support to acquire critical research instrumentation without which advances in fundamental science and engineering research may not otherwise occur. MRI also provides support to develop next-generation research instruments that open new opportunities to advance the frontiers in science and engineering research. Additionally, an MRI award is expected to enhance research training of students who will become the next generation of instrument users, designers and builders.

An MRI proposal may request up to $4 million for either acquisition or development of a research instrument. Beginning with the FY 2018 competition, each performing organization may submit in *revised* "Tracks" as defined below, *with no more than two submissions in Track 1 and no more than one submission in Track 2*.

- Track 1: Track 1 MRI proposals are those that request funds from NSF greater than or equal to $100,000[1] and less than $1,000,000.
- Track 2: Track 2 MRI proposals are those that request funds from NSF greater than or equal to $1,000,000 up to and including $4,000,000.

Consistent with the America COMPETES Act of 2007 (Public Law 110-69), cost sharing of precisely 30% of the total project cost is required for Ph.D.-granting institutions of higher education and for non-degree-granting organizations. Non-Ph.D.-granting institutions of higher education are exempt from the cost-sharing requirement and cannot include it. National Science Board policy prohibits voluntary committed cost sharing.

Please see the solicitation text for organizational definitions used by the MRI program.

The MRI Program especially seeks broad representation of PIs in its award portfolio, including women, underrepresented minorities and persons with disabilities. Since demographic diversity may be greater among early-career researchers the MRI program also encourages proposals with early-career PIs and proposals that benefit early-career researchers.

Awards Range: $100,000-$4 million; **Anticipated Funding Amount:** $75,000,000

Letter of Intent: Not Required

Submission Deadline: January 01, 2020 - January 19, 2020

Limit on Number of Proposals per Organization:

Three (3) as described below. Potential PIs are advised to contact their institutional office of research regarding processes used to select proposals for submission.

The MRI program requires that an MRI-eligible organization may, as a performing organization, submit or be included as a significantly funded [3] subawardee in no more than three MRI proposals. Beginning with this competition, each performing organization is now limited to a maximum of three proposals in *revised* "Tracks" as defined below, with no more than two submissions in Track 1 and no more than one submission in Track 2. Any MRI proposal may request support for either the acquisition or development of a research instrument. Within their submission limit, NSF strongly encourages organizations to submit proposals for innovative development projects.

Any MRI proposal may request support for either the acquisition or development of a research instrument.

- Track 1: Track 1 MRI proposals are those that request funds from NSF greater than or equal to $100,000[1] and less than $1,000,000.
- Track 2: Track 2 MRI proposals are those that request funds from NSF greater than or equal to $1,000,000 up to and including $4,000,000.

Note: The 30% cost-sharing requirement applies to only the portion of the total project cost budgeted to non-exempt organizations, including those participating through subawards. When required, cost-sharing must be precisely 30%. Cost sharing is required for Ph.D.-granting institutions of higher education and for non-degree-granting organizations. Non-Ph.D.-granting institutions of higher education are exempt from cost-sharing and cannot provide it. National Science Board policy is that vol untary committed cost sharing is prohibited. See section V.B. for specific information on cost-sharing calculations and the solicitation text for definitions of organizational types used for the MRI program.

[3] An unfunded collaboration does not count against the submission limit. Inclusion as a funded subawardee on a development proposal at a level in excess of 20% of the total budget requested from NSF, or as a funded subawardee, when allowed, on any acquisition proposal, will be counted against an organization's proposal submission limit. Separately submitted linked collaborative proposals count against the submission limit of each of the submitting organizations. However, if a subaward to an organization in a *development proposal* is 20% or less of the proposal's total budget request from NSF, the subawardee's submission limit will not be affected. For subawards within a linked collaborative

proposal, the 20% threshold applies to the budget request from NSF in the proposal containing the subaward(s), not to the combined budget request from NSF for the collaborative project.

Internal Competition Deadline to College Dean's Office: November 1, 2019: Please submit up to 5 pages pre-proposal white paper to your respective Dean by November 1, 2019 in the following format. College level reviews will be conducted by Deans to forward recommendations for up to 2 proposals to the Office of Research and Development by November 7, 2019. The final selection will be announced by November 15, 2019. The following format for the pre-proposal is suggested which is consistent with actual proposal guidelines and review criterion:

1. Cover Sheet (not counted in the page limit):
   a. Title of the project proposal
   b. Track Type: I or II
   c. PI name and affiliation and contact information
   d. Co-PIs name and affiliation
   e. Additional users or any consortium information, if applicable
   f. Date submitted to College Dean
2. Project Summary

Each proposal must contain a summary of the proposed project not more than one page in length. The Project Summary consists of an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity.

3. Proposal Description covering the subsections (a)-(e) as posted on the previous RFP on https://www.nsf.gov/pubs/2018/nsf18513/nsf18513.htm with the section:

(a) **a1. Instrument Location and Type**

a2. *ONLY REQUIRED FOR DEVELOPMENT PROPOSALS:* Justification for submission as a Development proposal

(b) Research Activities to be Enabled
(c) Description of the Research Instrumentation and Needs
(d) Broader Impacts (Including Impact on Research and Training Infrastructure)
(e) Management Plan

4. Preliminary Budget and Budget Justification; and Required Cost-Sharing
5. Brief biographical sketch of PI with a brief description of current and previous accomplishments.

For pre-proposal review, the NSF MRI proposal review criterion may be used to help faculty receive some feedback on their proposals that may be helpful for their final or future proposal submissions. The merit review criterion as posted on the RFP is:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes

Instrument Acquisition Proposals.

- The extent to which the instrument is used for multi-user, shared-use research and/or research training.
- Whether the management plan demonstrates sufficient commitment and technical expertise for effective scheduling and usage of the instrument.
- The organization's commitment to ensuring successful operations and maintenance over the expected lifetime of the instrument.
- Whether the research to be enabled is compelling and justifies the instrument request.
- Whether the budget request is appropriate and well justified.

- if student involvement is in the form of direct support for operations and maintenance of the instrument, reviewers will be asked to evaluate the involvement in terms of both instrument needs and the training of the next generation of instrumentalists.
- For instrument acquisition proposals of $1 million or above, the potential impact of the instrument on the research community of interest at the regional or national level, if appropriate.

Instrument Development Proposals:

- The appropriateness of submission as a development proposal.
- The need for development of a new instrument. Will the proposed instrument enable enhanced performance over existing instruments, or new types of measurement or information gathering? Is there a strong need for the new instrument in the larger user community to advance new frontiers of research?
- The adequacy of the project's management plan. Does the plan have a realistic schedule that is described in sufficient detail to be assessed? Are mechanisms described to mitigate and deal with potential risks?
- The availability of appropriate technical expertise to design and construct the instrument.
- The appropriateness of the cost of the new technology.

National Science Foundation

Grant Program: Biology Integration Institutes (BII)
Agency: National Science Foundation NSF 20-508
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505684&org=NSF&sel_org=NSF&from=fund
Brief Description: In the last century, the study of biology has slowly fragmented into subdisciplines, creating a dynamic tension between unifying principles and increasingly reductionist pursuits. The aim of this solicitation is to bring researchers together around the common goal of understanding how the processes that sustain life and enable biological innovation operate and interact within and across different scales of organization, from molecules to cells, tissues to organisms, species, ecosystems, biomes and the entire Earth. The Biology Integration Institutes (BII) program supports collaborative teams of researchers investigating questions that span multiple disciplines within and beyond biology.

Integration across biological disciplines is essential if we hope to understand the diverse and ever-increasing data streams of modern biology and tackle emergent questions about living organisms and the environment. Of equal importance is the need for groundbreaking and sustainable training programs that prepare the next generations of scientists to navigate the breadth of biological sciences, training in multiple disciplines without sacrificing depth of learning or innovation. In addition, the biology community must continue to develop practices and adopt strategies that leverage rapid advances in cyberinfrastructure and other technologies to bridge and integrate across subdisciplines and make resources accessible, re-usable, and adaptable for unanticipated purposes. In these ways, BIO Integration Institutes will enable the discoveries of life's innovations that will inspire new applications to drive our bioeconomy and provide solutions to societal challenges.

While this solicitation focuses on the integration of biological disciplines, any field beyond biology may be included as needed to address the overarching biological theme. Proposals may be submitted in one of two tracks: (1) ***Design*** proposals are for teams to develop communities and groundbreaking ideas to be submitted to later competitions as Implementation proposals through diverse and sustained activities, including workshops and follow-up meetings. (2) ***Implementation*** proposals are for teams that have already a) developed an Integrative Research Plan around a theme of significance, b)

designed an educational approach that employs effective methods for depth and breadth of training, AND c) prepared a cohesive and sustainable Management Plan that is ready for deployment.
Awards: Standard grants.
Letter of Intent: December 20, 2019
Proposal Submission Deadline: February 6, 2020
Contacts: Reed Beaman rbeaman@nsf.gov (703) 292-7163
Wilson Francisco wfrancis@nsf.gov (703) 292-7856

Grant Program: Campus Cyberinfrastructure (CC*)
Agency: National Science Foundation NSF 20-507
RFP Website: https://www.nsf.gov/pubs/2020/nsf20507/nsf20507.htm
Brief Description: The Campus Cyberinfrastructure (CC*) program invests in coordinated campus-level networking and cyberinfrastructure improvements, innovation, integration, and engineering for science applications and distributed research projects. Learning and workforce development (LWD) in cyberinfrastructure is explicitly addressed in the program. Science-driven requirements are the primary motivation for any proposed activity.
Awards: Standard grants. Anticipated Funding Amount: $14,000,000 to $20,000,000
The estimated number of awards per program area is as follows: 5--10 Data-Driven Networking Infrastructure awards; 5-7 Regional Connectivity for Small Institutions awards; 5-8 Network Integration and Applied Innovation awards; 8-15 Campus Computing and the Computing Continuum awards; 3-5 Cyber Team—Research and Education CI-based Regional Facilitation awards; and 3-8 Planning Grants and CI-Research Alignment awards.
Letter of Intent: Not Required
Proposal Submission Deadline: January 21, 2020
Contacts: Kevin L. Thompson, Program Director, CISE/OAC, telephone: (703) 292-4220, email: kthompso@nsf.gov
Deepankar (Deep) Medhi, Program Director, CISE/CNS, telephone: (703) 292-8950, email: dmedhi@nsf.gov

---

Grant Program: Macrosystems Biology and NEON-Enabled Science (MSB-NES)
Agency: National Science Foundation NSF 20-506
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503425&org=NSF&sel_org=NSF&from=fund
Brief Description: The *Macrosystems Biology and NEON-Enabled Science (MSB-NES): Research on Biological Systems at Regional to Continental Scales* program will support quantitative, interdisciplinary, systems-oriented research on biosphere processes and their complex interactions with climate, land use, and changes in species distribution at regional to continental scales as well as training activities to broaden participation of researchers in Macrosystems Biology and NEON-Enabled Science.
Proposers are encouraged to use NEON resources, and proposals for substantive and innovative NEON-enabled research will be prioritized for funding.Substantive NEON-enabled projects rely on data and/or samples collected by NEON, co-locate research activities at NEON sites, and/or develop tools that will explicitly enhance the processing, use, and/or analysis of NEON data or collections within the context of Macrosystems Biology research questions.
Awards: Standard grants.
Letter of Intent: Not Required
Proposal Submission Deadline: January 16, 2020

Contacts: Daniel S. Gruner dgruner@nsf.gov (703) 292-7946
Matthew D. Kane mkane@nsf.gov (703) 292-7186

Grant Program: Transitions to Excellence in Molecular and Cellular Biosciences Research (Transitions)
Agency: National Science Foundation NSF 20-505
RFP Website: https://www.nsf.gov/pubs/2020/nsf20505/nsf20505.htm
Brief Description: The Division of Molecular and Cellular Biosciences (MCB) has developed a new opportunity to enable researchers with a strong track record of prior accomplishment to pursue a new avenue of research or inquiry. This funding mechanism is designed to facilitate and promote a PI's ability to effective adopt empowering technologies that might not be readily accessible in the PI's current research environment or collaboration network. Transformative research likely spans disciplines and minimizing the practical barriers to doing so will strengthen research programs poised to make significant contributions. The award is intended to allow mid-career or later-stage researchers (Associate or Full Professor, or equivalent) to expand or make a transition in their research programs via a sabbatical leave or similar mechanism of professional development and then develop that research program in their own lab. This award will also enable the PI to acquire new scientific or technical expertise, facilitate the investigator's competitiveness, and potentially lead to transformational impacts in molecular and cellular bioscience. The award would fund up to six months of PI salary during the first sabbatical or professional development year, followed by support for continued research for two subsequent years upon the PI's return to normal academic duties. Through this solicitation MCB and NSF hope to develop a novel mechanism that will encourage investigators to expand and/or transition to new research areas aligned with MCB priorities, to increase retention of investigators in science, and to ensure a diverse scientific workforce that remains engaged in active research.

Highest funding priority is given to proposals that have outstanding intellectual merit and broader impacts, while proposals with weaknesses in either category (or those that are perceived as likely to have an incremental impact) will not be competitive. Proposals should also demonstrate a strong record of prior accomplishment, a compelling plan for professional development that will enable the PI to forge a new direction in their scholarship, and a strong rationale for why this support is needed for the PI to become competitive in the new research area. Support for the proposed transition from the PI's department, described in a letter from the department chair or equivalent, will also be required. Proposals that do not describe a plan for a transition in research direction will be considered unresponsive. Proposals that are motivated to understand the molecular and cellular basis of disease and disease treatments are not appropriate for the Division and will be returned without review.

Proposals addressing major open questions at the intersections of biology with other disciplines, such as physics, chemistry, mathematics, computer sciences, and engineering are of particular interest to the program.
Awards: Standard grants; 5-8 Awards
Anticipated Funding Amount: $6,000,000
Letter of Intent: Not Required
Proposal Submission Deadline: Proposals Accepted Anytime
Contacts: Michael Weinreich, telephone: (703) 292-7582, email: mcb-transitions@nsf.gov
Richard J. Cyr, telephone: (703) 292-8440, email: mcb-transitions@nsf.gov
Marcia E. Newcomer, telephone: (703) 292-4778, email: mcb-transitions@nsf.g

---

Grant Program: National Artificial Intelligence (AI) Research Institutes: Accelerating Research, Transforming Society, and Growing the American Workforce
Agency: National Science Foundation NSF 20-503
RFP Website: https://www.nsf.gov/pubs/2020/nsf20503/nsf20503.htm
Brief Description: Artificial Intelligence (AI) has advanced tremendously and today promises personalized healthcare; enhanced national security; improved transportation; and more effective education, to name just a few benefits. Increased computing power, the availability of large datasets and streaming data, and algorithmic advances in machine learning (ML) have made it possible for AI development to create new sectors of the economy and revitalize industries. Continued advancement, enabled by sustained federal investment and channeled toward issues of national importance, holds the potential for further economic impact and quality-of-life improvements.
The 2019 update to the National Artificial Intelligence Research and Development Strategic Plan, informed by visioning activities in the scientific community as well as interaction with the public, identifies as its first strategic objective the need to make long-term investments in AI research in areas with the potential for long-term payoffs in AI.
This program, a joint effort of the National Science Foundation (NSF), U.S. Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA), U.S. Department of Homeland Security (DHS) Science & Technology Directorate (S&T), U.S. Department of Transportation (DOT) Federal Highway Administration (FHWA), and U.S. Department of Veterans Affairs (VA), seeks to enable such research through AI Research Institutes. This program solicitation describes two tracks: Planning and Institute tracks. Submissions to the Planning track are encouraged in any areas of foundational and use-inspired research appropriate to NSF and its partner organizations. Proposals for the Institute track must have a principal focus in one or more of the following themes, detailed in the Program Description under "Institute Track":

- Trustworthy AI;
- Foundations of Machine Learning;
- AI-Driven Innovation in Agriculture and the Food System;
- AI-Augmented Learning;
- AI for Accelerating Molecular Synthesis and Manufacturing; and
- AI for Discovery in Physics.

Awards: Standard grants; NSF plans to make 1-6 Institute Awards and approximately 8 Planning Grants.
Anticipated Funding Amount: $24,000,000 to $124,000,000
Letter of Intent: Not Required
Proposal Submission Deadline: January 28, 2020 for Institute proposals in one of the six specified themes; January 30, 2020 for Planning proposals
Contacts: AI Institutes Program Team, phone: (703) 292-8074, email: AIInstitutesProgram@nsf.gov

---

Grant Program: Division of Environmental Biology (DEB)
Agency: National Science Foundation NSF 20-502
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503634&org=NSF&sel_org=NSF&from=fund
Brief Description: The Division of Environmental Biology (DEB) Core Track supports research and training on evolutionary and ecological processes acting at the level of populations, species, communities, and ecosystems. DEB encourages research that elucidates fundamental principles that identify and explain the unity and diversity of life and its interactions with the environment over space and time. Research may incorporate field, laboratory, or collection-based approaches; observational or manipulative studies; synthesis activities; phylogenetic discovery projects; or theoretical approaches involving analytical,

statistical, or computational modeling. Proposals should be submitted to the core clusters (Ecosystem Sciences, Evolutionary Processes, Population and Community Ecology, and Systematics and Biodiversity Sciences). DEB also encourages interdisciplinary proposals that cross conceptual boundaries and integrate over levels of biological organization or across multiple spatial and temporal scales. Research addressing ecology and ecosystem science in the marine biome should be directed to the Biological Oceanography Program in the Division of Ocean Sciences; research addressing evolution and systematics in the marine biome should be directed to the Evolutionary Processes or Systematics and Biodiversity Science programs in DEB.

All DEB programs also encourage proposals that leverage NSF-supported data networks, databases, centers, and other forms of scientific infrastructure, including but not limited to the National Ecological Observatory Network (NEON), Environmental Data Initiative (EDI), and Integrated Digitized Biocollections (iDigBio).

Awards: Standard grants
Letter of Intent: Not Required
Proposal Submission Deadline: Full Proposal Accepted Anytime
Contacts: Division of Environmental Biology debquestions@nsf.gov (703) 292-8480

Grant Program: Transport Phenomena Research at the International Space Station to Benefit Life on Earth
Agency: National Science Foundation NSF 20-501
RFP Website:
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505258&org=NSF&sel_org=NSF&from=fund
Brief Description: The Division of Chemical, Bioengineering and Environmental Transport (CBET) in the Engineering Directorate of the National Science Foundation (NSF) is partnering with The Center for the Advancement of Science in Space (CASIS) to solicit research projects in the general field of fluid dynamics, particulate and multiphase processes, combustion and fire systems, thermal transport processes, and nanoscale interactions that can utilize the International Space Station (ISS) National Lab to conduct research that will benefit life on Earth.
Awards: Standard grants
Letter of Intent: Not Required
Proposal Submission Deadline: December 9, 2019 - March 2, 2020
Contacts: Nora F. Savage nosavage@nsf.gov (703) 292-7949
Ronald Joslin rjoslin@nsf.gov (703) 292-7030

National Institutes of Health

Grant Program: NCMRR Early Career Research Award (R03 Clinical Trial Optional)
Agency: National Institutes of Health PAR-20-042
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-20-042.html
Brief Description: The NCMRR Early Career Research (ECR) Award is different from other NIH R03 programs, including the Parent Announcement. It is restricted to clinical and basic scientists who are in the early stages of their independent career in rehabilitation research. The research must be focused on one or more of the areas within the biomedical and behavioral mission of NCMRR: pathophysiology and management of chronically injured nervous and musculoskeletal systems (including stroke, traumatic brain injury, spinal cord injury, and orthopedic conditions); repair and recovery of motor and cognitive function; functional plasticity, adaptation, and windows of opportunity for rehabilitative interventions;

rehabilitative strategies involving pharmaceutical, stimulation, and neuroengineering approaches, exercise, motor training, and behavioral modifications; pediatric rehabilitation; secondary conditions associated with chronic disabilities; improved diagnosis, assessment, and outcome measures; and development of orthotics, prosthetics, and other assistive technologies and devices. The expected outcome from projects funded under this mechanism is the acquisition of necessary preliminary data for a subsequent research project grant (R01) application.
Award: The combined budget for direct costs for the entire project period may not exceed $200,000. No more than $100,000 in direct costs may be requested in any single year.
Letter of Intent: Not Applicable
Deadline: March 30, 2020, March 30, 2021, March 30, 2022
All applications are due by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: NINDS Ruth L. Kirschstein National Research Service Award (NRSA) for Training of Postdoctoral Fellows (F32 Clinical Trial Not Allowed)
Agency: National Institutes of Health PAR-20-021
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-20-021.html
Brief Description: This NINDS F32 is designed specifically to support postdoctorates who are just beginning a postdoctoral training period in a given laboratory or research environment (support from this F32 FOA may be requested for either a first or subsequent postdoctoral mentored training position, but a subsequent postdoctoral position will only be supported if the laboratory, research environment and mentor(s) are completely different from those of the applicant's first postdoctoral position). The window during which applicants are eligible to apply (from approximately 12 months prior to starting in the proposed postdoctoral position to within 12 months of starting the postdoctoral position) precludes the expectation of applicant-generated preliminary data, and thus encourages projects that rely on creative, innovative ideas that address highly significant questions. Due to the early application window, it is expected that there will be no preliminary data in the application and applicants are strongly encouraged NOT to include preliminary data in the application. Further, this F32 will only support postdoctorates who are within the first 3 years of training in a specific laboratory or scientific environment (or with a specific mentor). Candidates seeking support that focuses on advanced postdoctoral career development can apply for the NINDS postdoctoral K01, and candidates seeking support for completion of postdoctoral career development and transition to a faculty position can apply for a K99/R00.
Award: Award budgets are composed of stipends, tuition and fees, and institutional allowance.
Kirschstein-NRSA awards provide stipends as a subsistence allowance to help defray living expenses during the research and clinical training experiences. See https://researchtraining.nih.gov/resources/policy-notices
Fellowship awards will contribute to the combined cost of tuition and fees at the rate in place at the time of award. See https://researchtraining.nih.gov/resources/policy-notices
Letter of Intent: Not required
Deadline: February 11, 2020, June 9, 2020, and October 14, 2020, February 11, 2021, June 9, 2021, October 14, 2021, February 9, 2022, June 8, 2022, and October 11, 2022.
All applications are due, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).
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 Blueprint for Neuroscience Research Education Program on Translational Devices (R25 Clinical Trial Not Allowed)
Agency: National Institutes of Health RFA-NS-20-003
RFP Website: https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-20-003.html
Brief Description: The NIH Research Education Program (R25) supports research educational activities that complement other formal training programs in the mission areas of the NIH Institutes and Centers. The over-arching goals of the NIH R25 program are to: (1) complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs; (2) encourage individuals from diverse backgrounds, including those from groups underrepresented in the biomedical and behavioral sciences, to pursue further studies or careers in research; (3) help recruit individuals with specific specialty or disciplinary backgrounds to research careers in biomedical, behavioral and clinical sciences; and (4) foster a better understanding of biomedical, behavioral and clinical research and its implications.
The over-arching goal of this R25 program is to support educational activities that complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs.
To accomplish the stated goal, this FOA invites research education grant applications with a primary focus on:

- **Courses for Skills Development:** The short course should provide participants with a sufficient overview of the medical device development and translation process to (1) understand the steps required for medical device development and translation, (2) anticipate and overcome common challenges in the process, and (3) identify and interact effectively with collaborators who have expertise in various aspects of device development and translation. The short course should target senior post-doctoral fellows, independent academic researchers, clinician scientists, and small business entrepreneurs interested in pursuing medical device development and/or translation efforts.

The short course must address the unique challenges (technical, strategic, and ethical) that academic and small business investigators are likely to face when developing and translating novel medical devices to diagnose and/or treat a broad range of nervous system disorders. The curriculum must draw upon lessons learned in academia and industry, and clearly identify the types of expertise and collaborations typically required to initiate and complete a successful project.
Award: Direct costs of up to $250,000 per year may be requested. The maximum project period is 2 years.
Letter of Intent: November 16, 2019
Deadline: December 16, 2019.
No late applications will be accepted for this Funding Opportunity Announcement.
All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: NIDCR Small Grant Program for New Investigators (R03 Clinical Trial Not Allowed)
Agency: National Institutes of Health PAR-19-370
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-19-370.html

Brief Description: The NIDCR Small Grant Program for New Investigators (R03) is intended to provide support for New Investigators who are in the early stages of establishing independence in the areas of oral, dental and craniofacial research. Applications are invited from New Investigators whose proposed research addresses any of the goals described in the NIDCR Strategic Plan. In brief, the NIDCR Strategic Plan is dedicated to enhancing dental, oral and craniofacial health through fundamental discoveries and the clinical application of these discoveries. For more detailed information regarding scientific areas of interest and for program official contacts, please visit the NIDCR website.
The R03 is intended to support small research projects that can be carried out in a short period of time with limited resources. This program will support small pilot or feasibility studies and developmental research projects with the intention of obtaining sufficient preliminary data to support the subsequent submission of a competitive investigator initiated R01 or equivalent research application.
Award: A budget for direct costs of up to $200,000 may be requested. Application budgets should not exceed $100,000 in direct costs in either year.
Letter of Intent: Not Applicable
Deadline: Standard dates apply by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.
The first standard application due date for this FOA is October 16, 2019.
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/AFOSR

Grant Program: NRL Long Range Broad Agency Announcement (BAA) for Basic and Applied Research
Agency: Department of Defense Naval Research Laboratory N00173-19-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/.
Awards: Various
Proposal Deadline: September 05, 2020
Contact Information: Mary A Johnson; Procurement Analyst; Phone 202-767-2021
General Inquiries

Grant Program: DSO Office-wide Broad Agency Announcement

Agency: Department of Defense DARPA HR001119S0071
Website: https://www.darpa.mil/work-with-us/opportunities?tFilter=&oFilter=2&sort=date https://www.fbo.gov/index?s=opportunity&mode=form&id=22a346a8b55f0a7040d57a8fbc19e644&tab=core&_cview=1
Brief Description: The mission of the Defense Advanced Research Projects Agency (DARPA) Defense Sciences Office (DSO) is to identify and create the next generation of scientific discovery by pursuing high-risk, high-payoff research initiatives across a broad spectrum of science and engineering disciplines and transforming these initiatives into disruptive technologies for U.S. national security. In support of this mission, the DSO Office-wide BAA invites proposers to submit innovative basic or applied research concepts that address one or more of the following technical domains: (1) Frontiers in Math, Computation and Design, (2) Limits of Sensing and Sensors, (3) Complex Social Systems, and (4) Anticipating Surprise. Each of these domains is described below and includes a list of example research topics that highlight several (but not all) potential areas of interest. Proposals must investigate innovative approaches that enable revolutionary advances. DSO is explicitly not interested in approaches or technologies that primarily result in evolutionary improvements to the existing state of practice.
Awards: The total award value for the combined Phase 1 base and Phase 2 option is limited to $1,000,000. This total award value includes Government funding and performer cost share (if required).
Proposal Deadline: Executive Summary Due Date: June 12, 2020, 4:00 p.m. o Abstract Due Date: June 12, 2020, 4:00 p.m. o Full Proposal Due Date: June 12, 2020, 4:00 p.m.
Contact Information: BAA Email: HR001119S0071@darpa.mil

Department of Transportation

Grant Program: Dwight David Eisenhower Transportation Fellowship Program (DDETFP) Grants or Research Fellowship (GRF)
Agency: Department of Transportation 693JJ318NF5229-2019
Website:
https://www.fhwa.dot.gov/innovativeprograms/centers/workforce_dev/post_secondary_education.aspx
Brief Description: The Dwight David Eisenhower Transportation Fellowship Program (DDETFP) awards fellowships to students pursuing degrees in transportation-related disciplines (PDF or HTML). This program advances the transportation workforce by helping to attract the nation's brightest minds to the field of transportation, encouraging future transportation professionals to seek advanced degrees, and helping to retain top talent in the U.S. transportation industry. This funding opportunity is open to students that are U.S. citizens and non-U.S. citizens. The students must be enrolled in an IHE which must be accredited by a federally-recognized accrediting agency and must be located within the United States or its territories, both administratively as well as the campus the student is attending.
Awards: The anticipated stipends for the DDETFP GRF are based on academic level and shall be calculated as follows: Monthly Stipend: Master's Level: Up to $1,700; Doctoral Level: Up to $2,000
Proposal Deadline: July 25, 2019 at 3:00pm Eastern Time.
Contact Information: Ewa Flom Program Manager Phone 703-235-0532 ewa.flom@dot.gov

---

Department of Agriculture:

Grant Program: Solid Waste Management Grant Program
Agency: Department of Agriculture SWMFY2020
Website: https://www.rd.usda.gov/programs-services/solid-waste-management-grants

Brief Description: Evaluating current landfill conditions to determine threats to water resources; provide technical assistance and/or training to enhance operator skills in the operation and maintenance of active landfills; provide technical assistance and/or training to help communities reduce the solid waste stream; provide technical assistance and/or training for operators of landfills which are closed or will be closed in the near future with the development and implementation of closure plans, future land use plans, safety and maintenance planning, and closure scheduling within permit requirements. Grant funds may not be used to: recruit applications for the Agency's water and waste loan and/or any loan and/or grant program; duplicate current services, or replace or substitute support normally provided by other means, such as those performed by an association's consultant in developing a project, including feasibility, design, and cost estimates; fund political or lobbying activities; pay for capital assets; purchase real estate or vehicles, improve or renovate office space, or repair and maintain privately owned property; pay the costs for construction, improvement, rehabilitation, modification or operation and maintenance of water, wastewater, and solid waste disposal facilities and pay costs incurred prior to effective date of grants made under 7 CFR 1775.
Awards: Up to $1,000,000; Anticipated Funding: $4 million
Submission Deadline: September 17, 2019: 11:59:59 pm Eastern Time
Contact: Technical Contact: Contact the solid waste grant manager in the RD National Office at (202) 253-0504.

Department of Labor

Grant Program: Apprenticeships: Closing the Skills Gap
Agency: Department of Labor FOA-ETA-19-09
Website: https://www.grants.gov/web/grants/search-grants.html
Brief Description: Building on the experience abroad and in the United States, apprenticeships have emerged as a proven skills instruction model to meet industry's demand for a skilled American workforce. As the 21st economy requires greater skills development with an estimated 65 percent jobs of all jobs requiring some post-secondary education by 2020,1 apprenticeship programs can bolster the employability and technical skills of workers while meeting the workforce needs of business and industry.

There are more than 7.1 million job openings right now in the United States,3 many of which require a skilled workforce. These include in-demand cybersecurity professions and emerging occupations involving artificial intelligence (AI) across several industry sectors. Expanding apprenticeships can help individuals gain the skills necessary to fill these vacancies and help employers find skilled workers more readily. The period of performance is 48 months with an anticipated start date of February 1, 2020.

The purpose of this grant program is to promote apprenticeships as a significant workforce solution in filling current job vacancies and closing the skills gap between employer workforce needs and the skills of the current workforce. The overarching goals of this grant program are threefold: (1) to accelerate the expansion of apprenticeships to industry sectors and occupations that have not traditionally deployed apprenticeships for building a skilled workforce, such as cybersecurity, artificial intelligence, and health care; (2) to promote the large-scale expansion of apprenticeships across the nation to a range of employers, including small and medium-sized employers; and (3) to increase apprenticeship opportunities for all Americans. Recognizing that apprenticeship is a training strategy that operates on both the supply side and the demand side of the labor market, this grant program aims to increase both the number of apprenticeship positions and the ability of all Americans to gain access to this proven pathway to family-sustaining careers.

Awards: We will award up to $100 million in H-1B funds initially to fund approximately 16 to 30 apprenticeship grants, with awards ranging from $500,000 to $6 million.
Anticipated Funding: $100,000,000
Proposal Deadline: September 24, 2019 no later than 4:00:00 p.m. Eastern Time.
Contact Information: Denise Roach Grants Management Specialist roach.denise@dol.gov

---

EPA

Grant Program: Solid Waste Recycling Enhancement Act (REA) Higher Education Research Grant Program
Agency: NJ Department of Environmental Protection
Website: https://www.nj.gov/dep/grantandloanprograms/swrea-higher-ed.htm
Brief Description: This funding opportunity seeks to fund projects that support the objectives of the Recycling Enhancement Act. Eligible projects cover one or more of recycling demonstration, research or education, including professional training areas. Proposals may be designed to enhance existing resources, tools, or methodologies or create new resources pursuant to the Recycling Enhancement Act.
Awards: Approximately $1,000,000 of REA recycling tax funds have been allocated for this funding opportunity. Awardees and grant amounts will be selected based on the proposal, selection criteria and funds available to the Department.
Submission Deadline: December 13, 2019
Contact: Technical Contact: Fredrik Khayati, NJ Department of Environmental Protection, Division of Solid and Hazardous Waste; Phone: 609-984-4250
fredrik.khayati@dep.nj.gov

Grant Program: People, Prosperity and the Planet (P3) Student Design Competition
Agency: Environmental Protection Agency
EPA-G2020-P3-Q1 – Air Quality
EPA-G2020-P3-Q2 – Safe and Sustainable Water Resources
EPA-G2020-P3-Q3 – Sustainable and Healthy Communities
EPA-G2020-P3-Q4 – Chemical Safety
Website: https://www.epa.gov/research-grants/17th-annual-p3-awards-national-student-design-competition-focusing-people-0
Brief Description: The U.S. Environmental Protection Agency (EPA) – as part of its People, Prosperity and the Planet (P3) Award Program – is seeking applications proposing to research, develop, design, and demonstrate solutions to real world challenges. The P3 competition highlights the use of scientific principles in creating innovative technology-based projects that achieve the mutual goals of improved quality of life, economic prosperity and protection of the planet – people, prosperity, and the planet. The EPA offers the P3 competition to respond to the needs of people in the United States (U.S.)—including those in small, rural, tribal and/or disadvantaged communities. Please see the People, Prosperity and the Planet (P3) Student Design Competition website for more details about this program. Proposed projects must embody the P3 approach, which is that they have the intention and capability to simultaneously improve the quality of people's lives, provide economic benefits and protect the environment.
Awards: Anticipated Funding Amount: Approximately $800,000 total for all awards Potential Funding per Award: Up to $25,000 per Phase I grant including direct and indirect costs. Applications for Phase I grants requesting an award of more than $25,000 will not be considered. Applications for Phase I grants

must be for one year. Applications with a duration of more than one year will not be considered. Upon the successful completion of Phase I, grant recipients will have the opportunity to apply for a P3 Phase II grant of up to $100,000 total with a two-year duration, including direct and indirect costs (see Background section for more information). Applications for Phase II grants requesting an award of more than $100,000 or with a duration of more than two years will not be considered.
Submission Deadline: November. 19, 2019: 11:59:59 pm Eastern Time
Contact: Technical Contact: Technical Contact: Rich Callan; phone: 202-564-419; Eligibility Contact: Ron Josephson; phone: 202-564-7823; Submissions Contact: Debra M. Jones; phone: 202-564-7839

Department of Energy

Grant Program: Generating Electricity Managed by Intelligent Nuclear Assets (GEMINA)
Agency: Department of Energy DE-FOA-0002174
Website: https://arpa-e-foa.energy.gov/#FoaId4f8d5ac3-267d-4849-ad63-80f858761a74
Brief Description: The aim of this ARPA-E program is to make a transformational change to the current state-of-the-art and improve advanced reactor (AR) designs with operations and maintenance (O&M) in mind. Advances in autonomous, efficient, and low-cost systems O&M are occurring in many industrial sectors, largely powered by artificial intelligence (AI), advanced data analytics, distributed computing, powerful physics simulation tools, and other technical breakthroughs. To date, little of this advancement has been adopted by the nuclear energy industry. There is a crucial need to design and execute extremely robust and low-cost operations and maintenance procedures for ARs.

To accomplish this goal, ARPA-E seeks interdisciplinary teams to develop digital twins (DTs), or a technology with similar capability, for an AR design as the foundation of the team's O&M strategy. The digital twins (or equivalent) and associated O&M approaches the teams will develop will include diverse technologies that are driving efficiencies in other industries, such as AI, advanced control systems, predictive maintenance, and model-based fault detection. Because ARs are still in design phases, with no physical units operating, teams working on core operations will also develop cyber-physical systems (CPS) that simulate advanced reactor plant operating dynamics using a combination of non-nuclear experimental facilities (e.g., flow loops) and software. Teams will use these systems as the "real asset," a surrogate upon which developers can test their DT platforms for operations and maintenance. CPS may also provide validation data for regimes for conditions with high uncertainty. Teams focusing on activities outside the reactor core are encouraged to identify appropriate test systems and data. ARPA-E will also support research for filling specific technical gaps to enable the O&M strategies.
Awards: Various; Available Funding: $35,000,000
Proposal Submission Deadline: Concept Paper: 11/13/2019 9:30 AM ET; Applicants are strongly encouraged to submit their applications at least 48 hours in advance of the submission deadline
Contact: ARPA-E CO arpa-e-co@hq.doe.gov

Grant Program: Performance-Based Energy Resource Feedback, Optimization, And Risk Management
Agency: Department of Energy DE-FOA-0002171
Website: https://arpa-e-foa.energy.gov/#FoaIdcf23a62d-a269-4369-a408-bfb4ba014f8d
Brief Description: Optimal utilization of all grid assets requires a fundamental shift in grid management rooted in an understanding of asset risk and system risk. ARPA-E seeks innovative management systems that (i) represent the relative delivery risk of each asset and (ii) balance the collective risk of all assets across the grid. A risk-driven paradigm will allow operators to fully understand the true likelihood of

maintaining a supply-demand balance and system reliability; this is critical for all power systems and is essential for grids with high levels of stochastic resources.
Existing management practices were designed for a grid consisting of and fully reliant on conventional generation assets. Present operational and planning practices do not acknowledge or leverage the true capabilities and associated challenges of emerging assets. A risk-driven paradigm will allow emerging assets to be trusted and relied upon to provide the critical products and services necessary to maintain an efficient and reliable grid, thereby breaking the persistent reliance on conventional generation technologies.
Through the **Performance-based Energy Resource Feedback, Optimization, and Risk Management** (PERFORM) program, Applicants will propose methods to quantify and manage risk at the asset level and at the system level. At the asset level, ARPA-E envisions the design of a risk score or measure that clearly communicates the physical delivery risk of an asset's offer, similar to the role a credit score plays in determining the creditworthiness of an individual. At the system level, ARPA-E envisions the design of grid management systems that endogenously capture uncertainty and evaluate and hedge the system risk position to meet or exceed a baseline system risk index. The anticipated outcome of PERFORM is a transformative and disruptive risk-driven grid management paradigm that optimally utilizes all assets (including emerging technologies) to reduce costs and improve reliability.
Awards: Various; Available Funding: $30,000,000
Proposal Submission Deadline:
Submission Deadline for Concept Papers: 9:30 AM ET, October 28, 2019
Second Deadline for Questions to ARPA-E-CO@hq.doe.gov: 5 PM ET, TBD
Submission Deadline for Full Applications: 9:30 AM ET, TBD
Contact: ExchangeHelp@hq.doe.gov

Grant Program: Stewardship Science Academic Alliances (SSAA) Program
Agency: Department of Energy DE-FOA-0002149
Website: https://eere-exchange.energy.gov/
Brief Description: The Stewardship Science Academic Alliances (SSAA) Program was established in 2002 to support state-of-the-art research at U.S. academic institutions in areas of fundamental physical science and technology of relevance to the SSP mission. The SSAA Program provides the research experience necessary to maintain a cadre of trained scientists at U.S. universities to meet the nation's current and future SSP needs, with a focus on those areas not supported by other federal agencies. It supports the DOE/NNSA's priorities both to address the workforce specific needs in science, technology, engineering, and mathematics and to support the next generation of professionals who will meet those needs.
Awards: Various; Available Funding: $10,000,000
Proposal Submission Deadline: October 29, 2019
Contact: FedConnect.net

NASA

Grant Program: ROSES 2019: Heliophysics System Observatory Connect
Agency: NASA NNH19ZDA001N-HSOC
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7B1C50B1BF-52BA-7DD2-848D-13409588466F%7D&path=&method=init
Brief Description: The goal of the Heliophysics System Observatory (HSO) Connect program is to enhance the scientific return of the HSO by supporting investigations that innovatively connect

observations from one or more HSO missions with spacecraft or ground-based observations from other SMD Divisions, and/or other agencies within or outside the U.S. This instance of HSO-Connect focuses on observations from the Parker Solar Probe (PSP) mission together with other observations throughout the whole heliosphere. This includes data from currently operating space missions and ground-based observatories, and can include data from missions or observatories not yet launched or operational, but expected to be operational within the time interval of awards from this competition. In addition to PSP observations, investigations can include, but are not limited to, any HSO mission, but also Solar Orbiter, Bepi-Colombo, the Daniel K. Inouye Solar Telescope (DKIST) for example. In order to include observations not yet available, NASA Heliophysics is relaxing the requirement that all data must be in a public archive ahead of proposal submission (see Section 3.4.3 Limited Risk Waver).
Awards: Various
Proposal Deadline: Step-1 proposals are due by January 15, 2020, and Step-2 proposals are due March 13, 2020.
Contact: Arik Posner, Heliophysics Division, Science Mission Directorate, Telephone: (202) 358 0727
Email: arik.posner@nasa.gov

Grant Program: ROSES 2019: Research Opportunities in Space and Earth Sciences: Astrophysics Science SmallSat Studies
Agency: NASA NNH19ZDA001N and NNH19ZDA001N-AS3
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId={ABB576B8-F844-25E0-AD23-9E94AAC04AE1}&path=&method=init
Brief Description: The Astrophysics Science SmallSat Studies (AS3) program is intended to capitalize on the creativity in the astrophysics science community to envision science enabled by smaller and significantly lower cost missions. NASA expects to make awards for mission concept studies that will span the breadth of possible science investigations enabled by CubeSat/SmallSat technologies and available secondary launch opportunities. Mission design assistance, if required, for these mission concepts will be offered by NASA during the six-month studies (see Section 3.1). If such assistance is proposed, the proposal must include its cost within the submitted budget. NASA solicited missions of this class in the recent 2019 Astrophysics Explorers Missions of Opportunity solicitation and plans to do so at each future Astrophysics Explorers solicitation. NASA recognizes and supports the benefits of having diverse and inclusive scientific, engineering, and technology communities and fully expects that such values will be reflected in the composition of all proposal teams as well as peer review panels (science, engineering, and technology), science definition teams, and mission and instrument teams.
Awards: Various
Proposal Deadline: December 19, 2019 for NNH19ZDA001N-AS3
March 27, 2020 for NNH19ZDA001N
Contact: Michael Garcia, Astrophysics Division, Telephone: (202) 358-1053
Email: michael.r.garcia@nasa.gov

Grant Program: NASA Space Technology Graduate Research Opportunities - Fall 2020
Agency: NASA 80HQTR19NOA01-20NSTGRO_B4
Website: https://nspires.nasaprs.com/external/solicitations/summary!init.do?solId=%7B3691C1EE-588D-6D31-4DF0-361AFE16E9E9%7D&path=open
Brief Description: This call for graduate student space technology research proposals, titled NASA Space Technology Graduate Research Opportunities – Fall 2020 (NSTGRO20), solicits proposals on behalf individuals pursuing or planning to pursue master's or doctoral (Ph.D.) degrees in relevant space

technology disciplines at accredited U.S. universities. NASA Space Technology Graduate Researchers will perform innovative space technology research and will improve America's technological competitiveness by providing the Nation with a pipeline of innovative space technologies. NASA Space Technology Graduate Researchers will perform research at their respective campuses and at NASA Centers. In addition to their faculty advisor, each recipient will be matched with a technically relevant and community-engaged NASA researcher who will serve as the research collaborator on the award. Through this collaboration, graduate students will be able to take advantage of broader and/or deeper space technology research opportunities directly related to their academic and career objectives, acquire a more detailed understanding of the potential end applications of their space technology efforts, and directly disseminate their research results within the NASA community.
Awards: Awards resulting from this solicitation will be made in the form of grants to accredited U.S. universities with the faculty advisor as the Principal Investigator (PI).
Proposal Deadline: November 5, 2019
Contact: Claudia M Meyer NASA Space Technology Research Grants Phone: 202-358-4717 Fax: 202-358-3602
STRG Program Exec

Grant Program: Use of the NASA Physical Sciences Informatics System
Agency: NASA NNH17ZTT001N-17PSI-F
Website: https://nspires.nasaprs.com/external/
Brief Description: NASA plans to host a proposers' conference via Webex shortly after the release of the Appendix to provide more information and to answer questions about the NRA and the PSI system. NASA's Physical Sciences Research Program conducts fundamental and applied physical sciences research, with the objective of enabling exploration and pioneering scientific discovery. NASA's experiments in the various disciplines of physical science reveal how physical systems respond to the near absence of gravity. They also reveal how other forces that on Earth are small, as compared to gravity, can dominate system behavior in space.

The PSI system (http://psi.nasa.gov) is an online, publicly accessible database of completed physical science reduced-gravity flight experiments conducted on the ISS, on Space Shuttle flights, on Free Flyers, or on commercial cargo flights to and from the ISS, and related ground-based studies. It is a tool designed for researchers to data mine information from reduced-gravity physical sciences experiments and use it to further science in accordance with the open science approach, while also meeting the requirements of the nation's Open Data Policy. This NRA solicits ground-based research proposals that present a compelling case on how the experimental data from the PSI system will be used to promote the advancement of further research. Proposers must show a clear path from the scientific data obtained from the PSI system to the proposed investigation. In addition, the project must address an important problem in the proposed area of research and advance scientific knowledge or technology.

This NRA will remain open until 2022, with planned annual opportunities to propose to be provided through a series of appendices. This announcement is for the release of Appendix F, which solicits proposals in the following five research areas: Combustion Science, Complex Fluids, Fluid Physics, Fundamental Physics and Materials Science.
Awards: Various
Proposal Deadline: Proposals for Appendix F are due on or about December 16, 2019.
Contact: Dr. Francis Chiaramonte, Program Scientist for Physical Sciences Contact email

---

Grant Program: ROSES 2019: Living With a Star Science

Agency: NASA NNH19ZDA001N-LWS
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7B922F3674-F02A-FB17-DD75-0230277DDDAC%7D&path=&method=init
Brief Description: The Living With a Star (LWS) Program emphasizes the science necessary to understand those aspects of the Sun and Earth's space environment that affect life and society. The ultimate goal of the LWS Program is to provide a scientific understanding of the system that leads to predictive capability of the space environment conditions at Earth, other planetary systems, and in the interplanetary medium. The LWS program objectives are as follows: 1. Understand how the Sun varies and what drives solar variability. 2. Understand how the Earth and planetary systems respond to dynamic external and internal drivers. 3. Understand how and in what ways dynamic space environments affect human and robotic exploration activities. The LWS Program seeks to make progress in understanding the complex Heliophysics system, focusing on the fundamental science of the most critical interconnections. Further information on the LWS Program can be found at the LWS website (http://lwstrt.gsfc.nasa.gov/). The LWS Science program maintains a strategy with three components, namely, Strategic Capabilities, Targeted Investigations, and CrossDisciplinary Infrastructure Building programs. Only the Targeted Investigations will be competed in this announcement. Proposers interested in Strategic Capabilities should see Program Element B.10 Living With a Star Strategic Capabilities. Cross-Disciplinary Infrastructure Building may be competed in ROSES-2020.
Awards: Available funding: $4,900,000
Notice of Intent: Contact the program officer
Proposal Deadline: Step 1 Proposals Due December 05, 2019
Contact: Simon Plunkett Heliophysics Division Science Mission Directorate National Aeronautics and Space Administration Washington, DC 20546-0001 Telephone: (202) 358-2034 Email: simon.p.plunkett@nasa.gov

---

Grant Program: ROSES 2019: B.7 Space Weather Science Applications Operations 2 Research
Agency: NASA NNH19ZDA001N-SWO2R
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId={BD18A167-6DE8-1A35-A0ED-96F16AC6DE49}&path=&method=init
Brief Description: In October 2015, the National Science and Technology Council (NSTC) in the Executive Office of the President released the National Space Weather Strategy and the National Space Weather Action Plan (SWAP). In March 2019, these were updated with the release of the National Space Weather Strategy and Action Plan (NSW-SAP). The objectives of the actions described in the SWAP and NSW-SAP are to improve the understanding of, forecasting of, and preparedness for space weather events, recognizing the need for close cooperation among the federal agencies. The SWAP and NSW-SAP call for NASA, National Science Foundation (NSF), and Department of Defense (DOD) to identify and support basic research on space weather. They also direct NASA, Department of Commerce (DOC), and DOD to identify and support research opportunities that address targeted operational space-weather needs. Furthermore, they direct NASA, NSF, DOC, and DOD to facilitate the transition of space weather information and prediction capabilities to the Nation's space weather service providers (research-to-operations and operations-to-research). In response to the need to advance and coordinate the Nation's space weather research and operations capabilities, NASA has established the Heliophysics Space Weather Science Applications program, of which this operations-to-research (O2R) call is a part. NASA is supporting this funding opportunity in coordination with DOC/National Oceanic and Atmospheric Administration (NOAA) to promote O2R activities. For this call, the objective of O2R efforts is broadly defined as the joint pursuit of improvements of operational capabilities and advancements in related fundamental research.

The primary goal of this funding is to support research by the grant recipient to improve numerical models and/or data utilization techniques that could advance specification and/or forecasting capabilities and which could also lead to improved scientific understanding. Effective utilization of available data is encouraged. Employing data assimilation and/or machine-learning techniques is also encouraged.
Awards: Various
Proposal Deadline: Step-1 Proposal: December 16, 2019
Contact: James Spann Heliophysics Division Science mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: 202-358-0574 Email: jim.spann@nasa.gov

---

National Endowment of Humanities

Grant Program: Collaborative Research
Agency: National Endowment for the Humanities 20191205-RZ
Website: https://www.neh.gov/grants/research/collaborative-research-grants
Brief Description: The program allows projects that propose research in a single field of study, as well as interdisciplinary work. Projects that include partnerships with researchers from the natural and social sciences are encouraged, but they must remain firmly rooted in the humanities and must employ humanistic methods. Partnerships among different types of institutions are welcome. For example, research universities might partner with teaching colleges, libraries, museums, or independent research institutions. Proposed projects must lead to tangible and sustainable outcomes such as co-authored or multi-authored books; born-digital publications; themed issues of peer-reviewed journals; a series of peer-reviewed articles in academic journals or articles in general audience publications or both; and open-access digital resources.
Awards: Convening Grants: $50,000
Publication Grants: $250,000 (no more than $100,000 per year)
Deadlines: Application due: December 4, 2019
Contact: Contact the Division of Research Programs Team: 202-606-8200
collaborative@neh.gov

Brain Research Foundation (BRF)

Grant Program: Brain Research Foundation: 2020 Seed Grant Program
Agency: Brain Research Foundation (BRF)
Website: https://www.thebrf.org/
Brief Description: BRFs Annual Seed Grant Program was initiated in 1981. The purpose of the Program is to provide start-up money for new research projects and innovative programs that have the potential of becoming competitive for an NIH grant or other external funding sources. Our goal is to have this initial effort succeed in opening future opportunities for research, collaboration and scientific advancement.
Awards: Each total award is limited to $80,000 (direct costs) for a two year grant period. The first grant payment of $40,000 will be made upon completion of the Seed Grant Acceptance Form (June 2020). The final payment of $40,000 will be made contingent upon receipt of a Preliminary Progress and Financial Report (June 2021). The support focus is for new research projects of the highest scientific merit.
Proposal Deadline: Brain Research Foundation (BRF) has invited **eligible US academic institutions to nominate one (1) faculty member** to submit a Letter of Intent (LOI) for the BRF Grant Program. Nominated candidates must submit an LOI, with a biosketch, by **January 7, 2020.**

Streamlyne Question of the Week

Question: Can I generate budgets for multiple years from the Year-1 budget in Streamlyne?
Answer: Yes! You only need to input the Year-1 budget and then click on the "generate all periods" button. Stremalyne will create budget sheets for the remaining periods. You can then go to "summary" under the budget tab to review budget sheets for all periods. You can also change specific budget items that you allocated in Year-1 but you do not want to continue them in the following periods.

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

Streamlyne Information

Streamlyne User Manuals: http://www.njit.edu/research/streamlyne/
New "How to Do" videos: http://www5.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.

Faculty and staff having any questions on proposal submission, may contact their college representatives, and also follow up with **Justin Samolewicz, Director (Pre Award)** 973-596-3145; justin.m.samolewicz@njit.edu; and **Eric Hetherington,** Executive 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

---

Need Information about Funding?

Finding Research Opportunities and Collaborations (FROC)
***Walk-In* Open-Hour Discussion with SVPR Over Tea**
Every Thursday: 2.00 PM-3.00 PM; 340 Fenster Hall

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

- Research opportunities and potential collaborations
- Currently active RFPs and developing collaborative teams for proposal submission

- Proposal review criterion for specific RFP/program/agency
- Proposal concept and draft review in the context of review criterion
- Future plans for proposal development and submission
- Invention disclosures, patent applications and processing of intellectual property
- External faculty research awards including fellowships

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

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

Enjoy coffee/tea and cookies with SVPR over the discussion.
For any questions and additional information, please send an email to SVPR at dhawan@njit.edu.
