

NJIT Research Newsletter

Issue: ORN-2019-26

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

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Special Announcements

NSF Program: Critical Aspects of Sustainability (CAS)

The Critical Aspects of Sustainability (CAS) program includes the Division of Chemistry (CHE) and the Division of Materials Research (DMR) within the Directorate for Mathematical and Physical Sciences (MPS), the Division of Chemical, Bioengineering, Environmental and Transport Systems (CBET) and the Division of Civil, Mechanical and Manufacturing Innovation (CMMI) within the Directorate for Engineering (ENG), and the Division of Earth Sciences (EAR).

Economic development and human progress have led to a proliferation of manufactured chemicals and materials made from limited resources found in nature (i.e., minerals and metals, petroleum-based products and natural gas). Long-term sustainability requires consideration of the availability of specific natural resources, energy, and water usage. NSF continues to support efforts that seek to improve the efficiency with which natural resources are used to meet human needs for products and services. Sustainability research encompasses the design, manufacture and use of efficient, effective, safe and more environmentally-benign products and processes; stimulates innovation across all sectors to design and discover new chemicals and materials, production processes, and product stewardship practices; and, increases performance and value while meeting the goals of protecting and enhancing human health and the environment.

This program seeks to support basic research through core disciplinary programs aimed at improving the sustainability of resources for future generations while maintaining or improving current products in order to offer technologically-advanced, economically competitive, environmentally-benign and useful materials to a global society. In order to address these challenges, the program aims to identify opportunities for innovation in a wide range of contributing disciplines as well as integrative

activities. This program encourages the development of new experimental and theoretical/modeling approaches that will aid in both reductionist and whole-systems approaches.

More information is included in the Grant Opportunity section below.

Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: Critical Aspects of Sustainability (CAS); Computer and Information Science and Engineering (CISE): Core Programs; Advanced Computing Systems & Services; International Research Experiences for Students (IRES); Opportunities for Promoting Understanding through Synthesis (OPUS); NSF Convergence Accelerator; Innovative Technology Experiences for Students and Teachers (ITEST); Research Experiences for Undergraduates (REU); Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII); Physics Frontiers Centers (PFC); Division of Chemistry: Disciplinary Research Programs (CHE-DRP), Centers for Chemical Innovation (CCI), Methodology, Measurement, and Statistics (MMS); Secure and Trustworthy Cyberspace Frontiers (SaTC Frontiers)

NIH: BRAIN Initiative: Development of Next Generation Human Brain Imaging Tools and Technologies (U01); Novel Technology Tools to Facilitate Research Using Next Generation Patient-derived Cancer Models (U01); BRAIN Initiative: Non-Invasive Neuromodulation - New Tools and Techniques for Spatiotemporal Precision (R01); Bridges to the Doctorate Research Training Program (T32); Mechanistic Basis of Diffuse White Matter Disease in Vascular Contributions to Cognitive Impairment and Dementia (VCID)(R01); Non-Invasive Neurostimulation in AD/ADRD (R01)

Department of Transportation: Grants or Research Fellowship (GRF); Advanced Transportation and Congestion Management Technologies Deployment Initiative; National Infrastructure Investments

Department of Defense/US Army/DARPA/ONR: Securing Information for Encrypted Verification and Evaluation (SIEVE); Science of Artificial Intelligence – Basic and Applied Research for the Naval Domain; Artificial Intelligence/Machine Learning Enabled Capabilities; Office of Naval Research (ONR) Young Investigator; DSO Office-wide Broad Agency Announcement; Program Announcement for Disruptioneering; Materials Science in Extreme Environments University Research Alliance (MSEE-URA); DoD Psychological Health and Traumatic Brain Injury, Federal Interagency Traumatic Brain Injury Research Analysis Award; DoD Vision, Investigator- Initiated Research Award; DoD Duchenne Muscular Dystrophy, Idea Development Award;

Department of Labor: Apprenticeships: Closing the Skills Gap

EPA: Chemical Mechanisms to Address New Challenges in Air Quality Modeling; 2019 Healthy Communities Grant Program

Department of Energy: Electric Grid of Things; Request for Information (RFI): Marine Sciences Laboratory

NASA: ROSES 2019: Living With a Star Science; University Leadership Initiative (ULI2); Space Weather Science Applications Operations 2 Research; Heliophysics System Observatory Data Support

National Endowment of Humanities: Public Humanities Projects; Summer Stipends; Fellowship Programs at Independent Research Institutions

Simon Foundation: Autism Research

Mozilla: Mozilla Open Source Support (MOSS) Awards

Recent Research Grant and Contract Awards

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

PI: Wen Zhang (PI)

Department: Civil and Environmental Engineering

Grant/Contract Project Title: Probing Facet Dependent Properties of Crystalline Nanomaterials and Interactions with Biomolecules using Hybrid AFM

Funding Agency: NSF

Duration: 09/01/18-02/08/22

PI: Joerg Kliewer (PI)

Department: Electrical and Computer Engineering

Grant/Contract Project Title: Project Information Management System (PIMS) Hosting Support & Enhancements

Funding Agency: NSF

Duration: 01/01/19-09/30/22

PI: Edward Dreizen (PI)

Department: Chemical and Material Engineering

Grant/Contract Project Title: Metal Based Reactive Materials for Rapid Destruction of Chemical Weapon Agents

Funding Agency: DTRA

Duration: 07/15/19-07/14/22

PI: Xiaobo Li (PI)

Department: Biomedical Engineering

Grant/Contract Project Title: SBIR Phase I OMT FreePlay

Funding Agency: NSF

Duration: 07/01/19-06/30/20

PI: Bryan Pfister (PI)

Department: Biomedical Engineering

Grant/Contract Project Title: Surrogate Prototyping and Experiments for Traumatic Brain Injury (TBI)

Funding Agency: U.S. Army (ARL)

Duration: 10/31/17-07/31/20

In the News...

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

Coalition for National Security Research: The Coalition for National Security Research points out a number of provisions in both Senate and House defense bills affecting universities. The complete description is posted on the website <https://files.asee.org/data/public/63d1687e63ee3236.php> Among those in the Senate bill (some also adopted by the House): A Technology and National Security Fellowship; Biotechnologies R&D; a Cybercapabilities Roadmap; preserving the Strategic Capabilities Office; a Consortia of Universities to Advise Secretary of Defense on Cybersecurity Matters; and

Improvements to Network for Manufacturing Innovation. Those in the House bill include: Foreign Malign Influence Operations Research. The priority sections include:

Sec. 218. Technology and National Security Fellowship

Directs the Under Secretary for Research and Engineering to establish a civilian fellowship program designed to place eligible individuals within the Department and Congress to increase the number of national security professionals with science, technology, engineer, and mathematics credentials employed by the Department and Congress. Eligibility includes U.S. citizens that are working towards a STEM degree or possesses a STEM a degree awarded not earlier than one year before application was submitted.

Sec. 231. National Security Emerging Biotechnologies Research and Development Program

Directs the Secretary to carry out a research and development program in emerging biotechnologies. The committee notes that advances are occurring in biotechnology at an intersection of traditional biology, synthetic biology, engineering, and biotechnology. Advances in these areas could lead to improvement in many capabilities relevant to defense missions, including enhancing servicemembers' performance, increasing lethality and survivability, and improving battlefield healthcare.

Sec. 232. Cyber Science and Technology Activities Roadmap and Reports

Directs DOD to develop a roadmap for S&T activities to support the development of cyber capabilities to meet Department needs and missions.

Sensitive Research: University leaders have warned that certain measures considered by lawmakers, such as increased vetting of research grantees, "could stifle international collaboration and weaken the U.S. research enterprise," writes the [American Institute of Physics' FYI bulletin](#). "Some have also expressed skepticism about the severity of the threats identified by the government and have warned that concerns are proliferating about discrimination against Chinese and Chinese American researchers." Association of American Universities President Mary Sue Coleman argues that "creating a new category of sensitive research goes against the core principles of a longstanding presidential directive . . . which states that fundamental research should generally not be restricted and that classification is the appropriate mechanism for controlling sensitive research." One measure favored by Coleman and others is the bipartisan Securing American Science and Technology Act (SASTA), which would create an interagency committee dedicated to coordinating policies for guarding against "foreign interference, cyberattacks, theft, or espionage," and charter a National Academies roundtable.

More Public-Private Partnerships: The landscape for AI R&D is becoming increasingly complex, due to the significant investments that are being made by industry, academia, and nonprofit organizations. Additionally, AI advancements are progressing rapidly. The Federal Government must therefore continually reevaluate its priorities for AI R&D investments, to ensure that investments continue to advance the cutting edge of the field and are not unnecessarily duplicative of industry investments.

A new [White House artificial intelligence strategic plan](#) keeps much of the 2016 Obama administration while giving "greater attention to making AI trustworthy" and partnering with the private sector. The first seven strategies continue from the 2016 Plan, reflecting the reaffirmation of the importance of these strategies by multiple respondents from the public and government, with no calls to remove any of the strategies. The eighth strategy is new and focuses on the increasing importance of effective partnerships between the Federal Government and academia, industry, other non-Federal entities, and international allies to generate technological breakthroughs in AI and to rapidly transition those breakthroughs into capabilities. The strategic puts forward eight strategic priorities:

1. Long-term investments in AI research.
2. Develop effective methods for human-AI collaboration.
3. Understand and address the ethical, legal, and societal implications of AI.
4. Ensure the safety and security of AI systems.

5. Develop shared public datasets and environments for AI training and testing.
6. Measure and evaluate AI technologies through standards and benchmarks.
7. Better understand the national AI R&D workforce needs.
8. Expand public-private partnerships to accelerate advances in AI.

An AI Education Strategy: The Emerging Threats subcommittee wants the Pentagon to identify "the key aspects, applications, and challenges associated with artificial intelligence that can be developed into an educational curriculum for military service members who utilize the technology" and develop "an implementation plan" for the curriculum. The panel calls for "a plan to diversify and strengthen the Department's science, technology, research, and engineering workforce," and a master plan "to modernize the workforce and capabilities of its science and technology reinvention laboratories. It also says a senior official should be given responsibility for "the direction of research and development of next generation software and software intensive systems." A report by the Subcommittee on Intelligence and Emerging Threats and Capabilities is posted on the website <https://docs.house.gov/meetings/AS/AS26/20190604/109542/BILLS-116HR2500ih-IETC.pdf>

Webinar and Events

Event: Senior Sony Research Award Program Webinar (2019)

Sponsor: Sony

When: July 22, 2019; 1.00 PM – 1.45 PM

Website: <https://uidp.org/event/sony-research-award-program-webinar/>

Brief Description: UIDP will host an informative webinar about the Sony Research Award Program on Monday, July 22 from 1–1:45pm ET with 20 minutes of presentation and the rest for Q&A from the audience. Learn more about the award program, submission guidelines and application deadlines during Sony's webinar with Mark Ortiz, the manager of the Strategy & Planning Office for Sony Corporation of America's U.S. Research Center. The Sony Research Award Program is an academic award program created to provide U.S. and Canadian universities funding for emerging and innovative technology research projects in collaboration with Sony's own research division. The Program is comprised of the Faculty Innovation Award and the Focused Research Award within three broad subject categories: Information Technology, Devices & Materials, and Life Sciences.

With awards up to \$150,000 per year for each accepted proposal, awards create new opportunities for university faculties to engage in pioneering research that could drive new technologies, industries and the future.

To Join the Webinar: Please register at the above website

Event: Presidential Awards for Excellence in Mathematics and Science Teaching - National Selection Committee

Sponsor: NSF

When: Various (see below); 9.00 AM – 5.00 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=298140&org=NSF

Description: The 2019 National Selection Committee (NSC) for the Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST; www.paemst.org) will be taking place during the months of July and August. NSC panels reflect a wide range of panelists, including K-12 teachers and administrators; science, mathematics, and STEM education researchers; university professors; and others with the expertise to distinguish exceptional teaching.

Individuals interested in serving as an NSC panelist for any of the below panels, please complete the [NSC Reviewer Interest Form](#).

The dates for the panels are as follows:

- Monday and Tuesday, July 29-30
- Thursday and Friday, August 1-2
- Monday and Tuesday, August 5-6
- Thursday and Friday, August 8-9

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

Grant Opportunities

National Science Foundation

Grant Program: Critical Aspects of Sustainability (CAS)

Agency: National Science Foundation NSF PD 19-9102

RFP Website:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505673&org=NSF&sel_org=NSF&from=fund

Brief Description: Economic development and human progress have led to a proliferation of manufactured chemicals and materials made from limited resources found in nature (i.e., minerals and metals, petroleum-based products and natural gas). Long-term sustainability requires consideration of the availability of specific natural resources, energy, and water usage. NSF continues to support efforts that seek to improve the efficiency with which natural resources are used to meet human needs for products and services. Sustainability research encompasses the design, manufacture and use of efficient, effective, safe and more environmentally-benign products and processes; stimulates innovation across all sectors to design and discover new chemicals and materials, production processes, and product stewardship practices; and, increases performance and value while meeting the goals of protecting and enhancing human health and the environment.

This program seeks to support basic research through core disciplinary programs aimed at improving the sustainability of resources for future generations while maintaining or improving current products in order to offer technologically-advanced, economically competitive, environmentally-benign and useful materials to a global society. In order to address these challenges, the program aims to identify opportunities for innovation in a wide range of contributing disciplines as well as integrative activities. This program encourages the development of new experimental and theoretical/modeling approaches that will aid in both reductionist and whole-systems approaches.

This program welcomes proposals in any area of research supported through the participating divisions that address the topics outlined below. The selected topics are of particular interest to core disciplinary programs in the participating divisions and do not include all funding opportunities and priorities in the area or sustainability at NSF. Proposals are submitted to the relevant core Programs indicated below in the participating Divisions, and all questions regarding proposals should be addressed by the cognizant Program Officers to which submission is contemplated.

Awards: Standard Grants.

Letter of Intent: Not Required

Proposal Submission Deadline: Accepted anytime

All proposals to: the Advanced Manufacturing Program in the Division of Civil, Mechanical and Manufacturing Innovation (CMMI) -- Full Proposal Accepted Anytime;

All proposals to: the Ceramics and the Condensed Matter and Materials Theory Programs in the Division of Materials Research (DMR) -- Full Proposal Accepted Anytime;

All proposals to: the core programs in the Division of Chemical, Bioengineering, Environmental and Transport Systems (CBET) listed in the Program Announcement --Full Proposal Accepted Anytime;

All proposals to: the Petrology and Geochemistry (CH), Geobiology and Low-Temperature Geochemistry (GG), and Frontier Research in Earth Sciences (FRES) Programs in the Division of Earth Sciences (EAR) -- Full Proposal Accepted Anytime;

September 1, 2019 - September 30, 2019

All proposals to: Chemical Catalysis (CAT); Chemical Structure, Dynamics and Mechanisms-A/B (CSDM-A/B); Chemical Theory, Models and Computational Methods (CTMC); and Chemical Synthesis (SYN) in the Division of Chemistry (CHE) -- 09/01/2019 - 09/30/2019;

October 1, 2019 - November 1, 2019

All proposals to: Biomaterials, Condensed Matter Physics, Electronic and Photonic Materials, Metals and Metallic Nanostructures, Polymers, and Solid-State and Materials Chemistry in the Division of Materials Research (DMR) -- 10/01/2019 - 11/01/2019;

October 1, 2019 - October 31, 2019

All proposals to: Chemical Measurement and Imaging (CMI); Chemistry of Life Processes (CLP); Environmental Chemical Sciences (ECS); and Macromolecular, Supramolecular and Nanochemistry (MSN) in the Division of Chemistry (CHE) -- 10/01/2019 - 10/31/2019;

Contacts: Anne-Marie Schmoltner aschmolt@nsf.gov (703) 292-4716 CHE
Enriqueta C. Barrera ebarrera@nsf.gov (703) 292-7780 EAR
Khershed P. Cooper khcooper@nsf.gov (703) 292-7017 CMMI
Bruce K. Hamilton bhamilto@nsf.gov (703) 292-7066 CBET
Andrew J. Lovinger alovinge@nsf.gov (703) 292-4933 DMR

Grant Program: Computer and Information Science and Engineering (CISE): Core Programs

Agency: National Science Foundation NSF PD 19-589

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19589/nsf19589.htm>

Brief Description: The NSF CISE Directorate supports research and education projects that develop new knowledge in all aspects of computing, communications, and information science and engineering, as well as advanced cyberinfrastructure, through the following core programs:

Office of Advanced Cyberinfrastructure (OAC):

- OAC Core Research (OAC Core) program;

Division of Computing and Communication Foundations (CCF):

- Algorithmic Foundations (AF) program;
- Communications and Information Foundations (CIF) program;
- Foundations of Emerging Technologies (FET) program; and
- Software and Hardware Foundations (SHF) program;

Division of Computer and Network Systems (CNS):

- CNS Core (CNS Core) program;

Division of Information and Intelligent Systems (IIS):

- Cyber-Human Systems (CHS) program;
- Information Integration and Informatics (III) program; and
- Robust Intelligence (RI) program.

Awards: Proposers are invited to submit proposals in several project classes, which are defined as follows:

- Small Projects -- up to \$500,000 total budget with durations up to three years: projects in this class may be submitted to OAC, CCF, CNS, and IIS;
- Medium Projects -- \$500,001 to \$1,200,000 total budget with durations up to four years: projects in this class may be submitted to CCF, CNS, and IIS only; and
- Large Projects -- \$1,200,001 to \$3,000,000 total budget with durations up to five years: projects in this class may be submitted to CNS only.

Anticipated Funding Amount: \$280,000,000

Letter of Intent: Not Required

Proposal Submission Deadline:

September 20, 2019 - September 30, 2019

LARGE projects

September 20, 2019 - September 30, 2019

MEDIUM projects

October 31, 2019 - November 14, 2019

SMALL projects

September 07, 2020 - September 14, 2020

MEDIUM projects

September 16, 2020 - September 23, 2020

LARGE projects

October 29, 2020 - November 12, 2020

SMALL projects

Contacts: Alan Sussman, Point of Contact, OAC Core Research (OAC Core), telephone: (703) 292-7563, email: oac-core@nsf.gov

- Anindya Banerjee, Point of Contact, Software and Hardware Foundations (SHF), telephone: (703) 292-8910, email: ccf-shf@nsf.gov
- Mitra Basu, Point of Contact, Foundations of Emerging Technologies (FET), telephone: (703) 292-8910, email: ccf-fet@nsf.gov

Grant Program: Advanced Computing Systems & Services: Adapting to the Rapid Evolution of Science and Engineering Research

Agency: National Science Foundation NSF 19-587

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19587/nsf19587.htm>

Brief Description: The intent of this solicitation is to request proposals from organizations willing to serve as service providers (SPs) within the NSF Innovative High-Performance Computing (HPC) program to provide advanced cyberinfrastructure (CI) capabilities and/or services in production operations to support the full range of computational- and data-intensive research across all of science and engineering (S&E). The current solicitation is intended to complement previous NSF investments in advanced computational infrastructure by provisioning resources, broadly defined in this solicitation to include systems and/or services, in two categories:

- Category I, Capacity Systems: production computational resources maximizing the capacity provided to support the broad range of computation and data analytics needs in S&E research; and
- Category II, Innovative Prototypes/Testbeds: innovative forward-looking capabilities deploying novel technologies, architectures, usage modes, etc., and exploring new target applications, methods, and paradigms for S&E discoveries.

Resources supported through awards from this solicitation will be incorporated into and allocated as part of NSF's Innovative HPC program. This program complements investments in [leadership-class computing](#) and funds a federation of nationally-available HPC resources that are technically diverse and intended to enable discoveries at a computational scale beyond the research of individual or regional academic institutions. NSF anticipates that at least 90% of the provisioned system or services will be available to the S&E community through an open peer-reviewed national allocation process and be supported by community and other support services [such as those currently supported through eXtreme Science and Engineering Discovery Environment (XSEDE) 2.0 project-managed allocations recommended by the XSEDE Resource Allocation Committee (XRAC), and other activities intended to foster efficient coordination across resources], or an NSF-approved alternative that may emerge. If this is

not feasible for the proposed system/services, proposers must clearly explain in detail why this is the case and how they intend to make the proposed system/services available to the national S&E community.

Awards: Cooperative Agreements. Anticipated funding available: \$5,000,000 to \$10,000,000 per award. A total of \$30,000,000 is available for this solicitation, subject to the availability of funds. It is anticipated that 1-2 awards will be made in Category I at up to \$10,000,000 per award for up to five years and up to 1-2 awards in Category II at up to \$5,000,000 per award for up to five years.

Letter of Intent: Not Required

Limit on Number of Proposals per Organization: 1

Proposal Submission Deadline: November 05, 2019

Contacts: Robert Chadduck, Program Director, CISE/OAC, telephone: (703) 292-8970, email: rchadduc@nsf.gov

- Alejandro M. Suarez, Assistant Program Director, CISE/OAC, telephone: (703) 292-7092, email: alsuarez@nsf.gov
- Edward Walker, Program Director, CISE/OAC, telephone: (703) 292-4863, email: edwalker@nsf.gov

Grant Program: International Research Experiences for Students (IRES)

Agency: National Science Foundation NSF 19-585

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19585/nsf19585.htm>

Brief Description: The International Research Experiences for Students (IRES) program supports international research and research-related activities for U.S. science and engineering students. The IRES program contributes to development of a diverse, globally-engaged workforce with world-class skills. IRES focuses on active research participation by undergraduate or graduate students in high quality international research, education and professional development experiences in NSF-funded research areas.

The overarching, long-term goal of the IRES program is to enhance U.S. leadership in research and education and to strengthen economic competitiveness through training the next generation of research leaders.

This solicitation features three mechanisms; proposers are required to select one of the following tracks to submit their proposal.

Track I focuses on the development of world-class research skills in international cohort experiences. Track II is dedicated to targeted, intensive learning and training opportunities that leverage international knowledge at the frontiers of research. Track III supports U.S. institutional collaborations to develop, implement and evaluate innovative models for high-impact, large-scale international research and professional development experiences for U.S. graduate students.

Student participants supported by IRES funds must be citizens, nationals, or permanent residents of the United States.

Students do not apply directly to NSF to participate in IRES activities. Students apply to NSF-funded investigators who receive IRES awards. To identify appropriate IRES projects, students should consult the directory of active [IRES awards](#).

All PIs, co-PIs and Senior Personnel on IRES proposals must be from U.S. based institutions.

1. **IRES - Track I: *IRES Sites (IS)*** projects engage a group of undergraduate and/or graduate students in active high-quality collaborative research at an international site with mentorship from researchers at a host lab. IRES Sites must be organized around a coherent intellectual theme that may involve a single discipline or multiple disciplines funded by NSF.
2. **IRES - Track II: *Advanced Studies Institutes (ASI)*** are intensive short courses with related activities that engage advanced graduate students in active learning and research at the frontiers of knowledge. ASIs typically range in length from ten to twenty-one days and must be held outside

the United States. ASIs must have a compelling rationale for their international location and should involve distinguished active researchers in the target field from the U.S. and abroad. ASIs should enable students to develop skills and broaden professional networks, leveraging international participation and complementary resources (expertise, facilities, data, field site, etc.) for mutual benefit.

3. **IRES - Track III: *New Concepts in International Graduate Experience (IGE)*** The IGE IRES track invites teams of PIs to propose, implement, evaluate and disseminate innovative large-scale programs (models) for providing high-quality international research and research-related professional development experiences to U.S. graduate students. The PIs should explain how their innovative program (model) could potentially be adaptable beyond the immediate disciplinary fields involved in their proposal. The proposals should be designed from the viewpoint of graduate-level STEM research/training, and globally engaged STEM workforce development. The proposals should be grounded in relevant literature on graduate STEM research/training, education, and graduate level international experiences.

U.S. graduate students recruited from a broad, diverse applicant pool should travel to non-U.S. locations for periods of several weeks to a semester for immersive experiences under the mentorship of appropriate collaborators. The proposed international graduate research experience model may focus on research and research-related activities in any NSF-funded area(s). Proposals that utilize, leverage and expand existing global networks and infrastructure are strongly encouraged.

Awards: Standard Grant or Continuing Grant

Estimated Number of Awards: 30 to 35

Track- I: IRES Sites. Approximately 20-25 awards will be made in FY 2020, pending quality of proposals and availability of funds.

Track- II: Advanced Studies Institutes. Approximately 5-7 awards will be made in FY 2020 pending quality of proposals and availability of funds.

Track- III: New Concepts in International Graduate Experience. Approximately 3-5 awards will be made in FY 2020, pending quality of proposals and availability of funds.

Anticipated Funding Amount: \$13,000,000 in FY 2020, pending availability of funds.

Track- I: IRES Sites. Up to \$300,000 per award. For exceptionally creative proposals, awards up to \$400,000 will be considered.

Track- II: Advanced Studies Institutes. Typically, an average ASI budget is \$150,000 for each institute. Proposals involving a series of institutes are permitted when well-justified. The overall total budget for Track II proposals should not exceed \$400,000.

Track- III: New Concepts in International Graduate Experience. Up to \$1,000,000 per award. Smaller budgets (\$400,000 - \$600,000) appropriate for highly innovative models that may serve as pilots.

Letter of Intent: Not Required

Proposal Submission Deadline:

September 10, 2019

Second Tuesday in September, Annually Thereafter

Track - I: IRES Sites

September 17, 2019

Third Tuesday in September, Annually Thereafter

Track-II: Advanced Studies Institutes

September 24, 2019

Fourth Tuesday in September, Annually Thereafter

Track - III: New Concepts in International Graduate Experience

Contacts: Maija M. Kukla, telephone: (703) 292-4940, email: mkukla@nsf.gov

- Fahmida N. Chowdhury, telephone: (703) 292-4672, email: fchowdhu@nsf.gov

Grant Program: Opportunities for Promoting Understanding through Synthesis (OPUS)

Agency: National Science Foundation NSF 19-584

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19584/nsf19584.htm>

Brief Description: The OPUS program seeks to provide opportunities for mid- to later-career investigators to develop new understanding of science in the fields supported by the Division of Environmental Biology (DEB) through two tracks of synthesis activities.

OPUS: Mid-Career Synthesis. This track aims to provide a mid-career researcher, defined as a candidate at the associate professor rank (or equivalent), with new capabilities to enhance their productivity, improve their retention as a scientist, and ensure a diverse scientific workforce that remains engaged in active research (including more women and minorities at high academic ranks). This track provides an opportunity for the mid-career scientist to enable a new synthesis of their ongoing research. Synthesis is achieved by developing new research capabilities through collaboration with a mentor to enable new understanding of the research system and questions of interest.

OPUS: Core Research Synthesis. This track provides an opportunity for an individual or a group of investigators to revisit and synthesize a significant body of their prior research in a way that will enable new understanding of their research system and questions of interest. This track would also be appropriate early enough in a career to produce unique, integrated insight useful both to the scientific community and to the development of the investigator's future career.

All four clusters within the Division of Environmental Biology (Ecosystem Science, Evolutionary Processes, Population and Community Ecology, and Systematics and Biodiversity Science) encourage the submission of these proposals enabling researchers to expand understanding and develop new insights in their research.

Awards: Standard Grants. Annually. Anticipated award size is \$175,000-\$350,000

Letter of Intent: Not Required

Proposal Submission Deadline: August 28, 2019

Contacts: George W. Gilchrist, telephone: (703) 292-7138, email: ggilchri@nsf.gov

- Leslie J. Rissler, telephone: (703) 292-4628, email: lrissler@nsf.gov

Grant Program: NSF Convergence Accelerator

Agency: National Science Foundation NSF PD 19-095Y

RFP Website:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505665&org=NSF&sel_org=NSF&from=fund

Brief Description: With the NSF Convergence Accelerator, NSF's goals are: (i) to pilot a new NSF capability to accelerate use-inspired convergence research in areas of national importance, and (ii) to initiate convergence team-building capacity around exploratory, potentially high-risk proposals in specific convergence topics (tracks). The NSF Convergence Accelerator supports use-inspired, goal-oriented, basic research, encouraging rapid advances through partnerships that include multiple stakeholders (e.g., industry, academic, not-for-profits, government entities, and others). The NSF Convergence Accelerator brings teams together in a cohort that are all focused on a common research goal of national importance, but which may be pursuing many different approaches.

As a funder of research and education across all fields of science and engineering and with relationships with universities and funding agencies around the world, NSF is uniquely positioned to pilot this approach to accelerate discovery and innovation. Teams supported by the NSF Convergence Accelerator will focus on grand challenges that require a convergence approach. The teams are multidisciplinary and leverage partnerships; tracks within the NSF Convergence Accelerator relate to a grand challenge problem and have a high probability of resulting in deliverables that will benefit society

within a fixed term. The NSF Convergence Accelerator is modeled on acceleration and innovation activities from the most forward-looking companies and universities.

Specific funding opportunities will be announced through Dear Colleague Letters, program announcements, and/or solicitations. For more information see the NSF Convergence Accelerator website: <https://www.nsf.gov/od/oia/convergence-accelerator/index.jsp>

Awards: Standard Grants.

Letter of Intent: Not Required

Proposal Submission Deadline: Accepted anytime

Contacts: Douglas Maughan dmaughan@nsf.gov 703-292-2497

Lara A. Campbell lcampbel@nsf.gov (703) 292-7049

Grant Program: Innovative Technology Experiences for Students and Teachers (ITEST)

Agency: National Science Foundation NSF 19-583

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19583/nsf19583.htm>

Brief Description: ITEST is an applied research and development (R&D) program providing direct student learning opportunities in pre-kindergarten through high school (PreK-12). The learning opportunities are based on innovative use of technology to strengthen knowledge and interest in science, technology, engineering, and mathematics (STEM) and information and communication technology (ICT) careers. To achieve this purpose, ITEST supports projects that engage students in technology-rich experiences that: (1) increase awareness and interest of STEM and ICT occupations; (2) motivate students to pursue appropriate education pathways to those occupations; and (3) develop STEM-specific disciplinary content knowledge and practices that promote critical thinking, reasoning, and communication skills needed for entering the STEM and ICT workforce of the future.

ITEST seeks proposals that pursue innovative instructional approaches and practices in formal and informal learning environments, in close collaboration with strategic partnerships. ITEST proposals should broaden participation of all students, particularly those in underrepresented and underserved groups in STEM fields and related education and workforce domains. ITEST supports three types of projects: (1) Exploring Theory and Design Principles (ETD); (2) Developing and Testing Innovations (DTI); and (3) Scaling, Expanding, and Iterating Innovations (SEI). ITEST also supports Synthesis and Conference proposals.

Awards: Standard Grants.

Anticipated Funding Amount: \$25,000,000

Letter of Intent: Not Required

Proposal Submission Deadline: August 19, 2019

Contacts: Address questions to the Program, telephone: (703) 292-8620, email: DRLITEST@nsf.gov

Grant Program: Research Experiences for Undergraduates (REU) Sites and Supplements

Agency: National Science Foundation NSF 19-582

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19582/nsf19582.htm>

Brief Description: The Research Experiences for Undergraduates (REU) program supports active research participation by undergraduate students in any of the areas of research funded by the National Science Foundation. REU projects involve students in meaningful ways in ongoing research programs or in research projects specifically designed for the REU program. This solicitation features two mechanisms for support of student research: (1) *REU Sites* are based on independent proposals to initiate and conduct projects that engage a number of students in research. REU Sites may be based in a single discipline or academic department or may offer interdisciplinary or multi-department research opportunities with a

coherent intellectual theme. Proposals with an international dimension are welcome. (2) *REU Supplements* may be included as a component of proposals for new or renewal NSF grants or cooperative agreements or may be requested for ongoing NSF-funded research projects.

Undergraduate student participants in either REU Sites or REU Supplements must be U.S. citizens, U.S. nationals, or permanent residents of the United States.

Students do not apply to NSF to participate in REU activities. Students apply directly to REU Sites or to NSF-funded investigators who receive REU Supplements. To identify appropriate REU Sites, students should consult the directory of active REU Sites on the Web

at https://www.nsf.gov/crssprgm/reu/reu_search.cfm.

Awards: Standard Grants. **Estimated Number of Awards:** 1,750 to 1,800

This estimate includes approximately 180 new Site awards and 1,600 new Supplement awards each year.

Anticipated Funding Amount: \$76,370,000

Letter of Intent: Not Required

Proposal Submission Deadline: August 28, 2019

Contacts: [NSF REU Site Contacts](#)

Grant Program: Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII)

Agency: National Science Foundation NSF 19-579

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19579/nsf19579.htm>

Brief Description: The NSF Directorate for Computer and Information Science and Engineering (CISE) seeks to award grants intended to support research independence among early-career academicians who specifically lack access to adequate organizational or other resources. It is expected that funds obtained through this program will be used to support untenured faculty or research scientists (or equivalent) in their first three years in a primary academic position after the PhD, but not more than five years after completion of their PhD. Applicants for this program may not yet have received any other grants or contracts in the PI role from any department, agency, or institution of the federal government, including from the CAREER program or any other program, post-PhD, regardless of the size of the grant or contract, with certain exceptions as noted below. Serving as co-PI, Senior Personnel, Postdoctoral Fellow, or other Fellow does not count against this eligibility rule.

Importantly, the CRII program seeks to provide essential resources to enable early-career PIs to launch their research careers. For the purposes of this program, CISE defines “essential resources” as those that (a) the PI does not otherwise have, including through organizational or other funding and (b) are critical for the PI to conduct early-career research that will enable research independence. In particular, this program is not appropriate for PIs who already have access to resources to conduct any early-career research.

It is expected that these funds will allow the new CRII PI to support one or more graduate students for up to two years. Faculty at undergraduate and two-year institutions may use funds to support undergraduate students, and may use the additional RUI designation (which requires inclusion of a RUI Impact Statement) -- see https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5518 for additional information. In addition, submissions from all institutions may use funds for postdoctoral scholars, travel, and/or research equipment.

Awards: Standard Grant. Each award will be up to \$175,000 for a period of 24 months. Anticipated Funding: \$10,000,000.

Letter of Intent: Not Required

Proposal Submission Deadline: August 14, 2019

Contacts: Almadena Y. Chtchelkanova, Program Director, CCF, telephone: (703) 292-8910, email: achtchel@nsf.gov

- Ephraim P. Glinert, Program Director, IIS, telephone: (703) 292-8930, email: eglinert@nsf.gov
 - Mimi McClure, Associate Program Director, CNS, telephone: (703) 292-8950, email: mmcclure@nsf.gov
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Grant Program: Physics Frontiers Centers (PFC)

Agency: National Science Foundation NSF 19-578

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19578/nsf19578.htm>

Brief Description: The Physics Frontiers Centers (PFC) program supports university-based centers and institutes where the collective efforts of a larger group of individuals can enable transformational advances in the most promising research areas. The program is designed to foster major breakthroughs at the intellectual frontiers of physics by providing needed resources such as combinations of talents, skills, disciplines, and/or specialized infrastructure, not usually available to individual investigators or small groups, in an environment in which the collective efforts of the larger group can be shown to be seminal to promoting significant progress in the science and the education of students. Activities supported through the program are in all sub-fields of physics within the purview of the Division of Physics: atomic, molecular, optical, plasma, elementary particle, nuclear, particle astro-, gravitational, and biological physics. Interdisciplinary projects at the interface between these physics areas and other disciplines and physics sub-fields may also be considered, although the bulk of the effort must fall within one of those areas within the purview of the Division of Physics. The successful PFC activity will demonstrate: (1) the potential for a profound advance in physics; (2) creative, substantive activities aimed at enhancing education, diversity, and public outreach; (3) potential for broader impacts, e.g., impacts on other field(s) and benefits to society; (4) a synergy or value-added rationale that justifies a center- or institute-like approach.

Awards: Cooperative Agreement. Anticipated Funding: \$8,000,000. Individual PFC awards are expected to range in size between \$1.0 million/year and \$5.0 million/year. The number of awards in FY 2020 is expected to be in the range 3-5, depending upon the availability of funds and the quality of proposals received. Awards will be made for five years, with an option for a one-year extension.

Letter of Intent: Not Required

Limit on Number of Proposals per Organization: 2; No more than two preliminary proposals may be submitted by any one institution. The same limitation applies to full proposals.

Preliminary Proposal Due Date(s) (required) (due by 5 p.m. submitter's local time): August 01, 2019

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time): January 30, 2020; by invitation only.

Contacts: Jean Cottam Allen, Program Director, telephone: (703) 292-8783, email: jcallen@nsf.gov

- Kathleen McCloud, Program Director, telephone: (703) 292-8236, email: kmcccloud@nsf.gov
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Grant Program: Division of Chemistry: Disciplinary Research Programs (CHE-DRP)

Agency: National Science Foundation NSF 19-577

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19577/nsf19577.htm>

Brief Description: This solicitation applies to nine CHE Disciplinary Chemistry Research Programs: Chemical Catalysis (CAT); Chemical Measurement and Imaging (CMI); Chemical Structure, Dynamics and Mechanisms-A (CSDM-A); Chemical Structure Dynamics and Mechanisms-B (CSDM-B); Chemical Synthesis (SYN); Chemical Theory, Models and Computational Methods (CTMC); Chemistry of Life Processes (CLP); Environmental Chemical Sciences (ECS); and Macromolecular, Supramolecular and Nanochemistry (MSN).

All proposals submitted to these nine CHE Disciplinary Research Programs (other than the following exceptions) must be submitted through this solicitation, otherwise they will be returned without review.

Exceptions:

- Faculty Early Career Development Program (CAREER) proposals should be submitted through the CAREER solicitation (https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503214) by the CAREER deadline date specified.
- Facilitating Research at Primarily Undergraduate Institutions: Research in Undergraduate Institutions (RUI) and Research Opportunity Awards (ROA) proposals should be submitted through the RUI/ROA solicitation (https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5518) during the window for the appropriate CHE Disciplinary Research Program. In addition to the requirements of the RUI program, proposals should follow the guidance in this solicitation.
- Proposals for Early-concept Grants for Exploratory Research (EAGER), Grants for Rapid Response Research (RAPID), Research Advanced by Interdisciplinary Science and Engineering (RAISE), and conferences can be submitted anytime after consultation with the cognizant NSF Program Officer.
- Supplemental funding requests to existing grants can be submitted anytime after consultation with the cognizant NSF Program Officer.

Awards: Standard Grant. Anticipated Funding: \$150,000,000.

Letter of Intent: Not Required

Proposal Submission Deadline: September 01, 2019 - September 30, 2019

Contacts: For CTMC: Evelyn Goldfield, telephone: (703) 292-2173, email: egoldfie@nsf.gov

- For CLP: Catalina Achim, telephone: (703) 292-2048, email: cachim@nsf.gov
- For CSDM-A: Colby A. Foss, telephone: (703) 292-5327, email: cfoss@nsf.gov
- For CMI: Kelsey D. Cook, telephone: (703) 292-7490, email: kcook@nsf.gov
- For CSDM-B: Tingyu Li, telephone: (703) 292-4949, email: tli@nsf.gov

Grant Program: Centers for Chemical Innovation (CCI): Phase I Awards and New/Renewal Phase II Centers

Agency: National Science Foundation NSF 19-576

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19576/nsf19576.htm>

Brief Description: The Centers for Chemical Innovation (CCI) Program supports research centers focused on major, long-term fundamental chemical research challenges. CCIs that address these challenges will produce transformative research, lead to innovation, and attract broad scientific and public interest. CCIs are agile structures that can respond rapidly to emerging opportunities through enhanced collaborations. CCIs integrate research, innovation, education, broadening participation, and informal science communication.

The CCI Program is a two-phase program. Both phases are described in this solicitation. Phase I CCIs receive significant resources to develop the science, management and broader impacts of a major research center before requesting Phase II funding. Satisfactory progress in Phase I is required for Phase II applications; Phase I proposals funded in FY 2020 will seek Phase II funding in FY 2023. The FY 2020 Phase I CCI competition is open to projects in all fields supported by the Division of Chemistry, and must have scientific focus and the potential for transformative impact in chemistry. *NSF Chemistry particularly encourages fundamental chemistry projects related to one or more of NSF's [10 Big Ideas](#).*

The FY 2020 Phase II CCI competition is open to projects funded as Phase I awards in FY 2017 and the renewal of the Center for Sustainable Nanotechnology.

Awards: Standard Grant. Anticipated Funding: \$17,400,000.

Letter of Intent: Not Required

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

August 13, 2019: Phase I Preliminary Proposals

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

October 16, 2019: Phase II Full Proposals, New and Renewal

February 19, 2020: Phase I Full Proposals, by invitation only

Contacts: Michelle M. Bushey, telephone: (703) 292-4938, email: mbushey@nsf.gov

- Katharine J. Covert, telephone: (703) 292-4950, email: kcovert@nsf.gov
 - Colby A. Foss, telephone: (703) 292-5327, email: cfoss@nsf.gov
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Grant Program: Methodology, Measurement, and Statistics (MMS)

Agency: National Science Foundation NSF 19-575

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19575/nsf19575.htm>

Brief Description: The Methodology, Measurement, and Statistics (MMS) Program is an interdisciplinary program in the Directorate for Social, Behavioral, and Economic Sciences that supports the development of innovative analytical and statistical methods and models for those sciences. MMS seeks proposals that are methodologically innovative, grounded in theory, and have potential utility for multiple fields within the social, behavioral, and economic sciences. As part of its larger portfolio, the MMS Program partners with a consortium of federal statistical agencies to support research proposals that further the production and use of official statistics.

The MMS Program provides support through a number of different funding mechanisms. The following mechanisms are addressed in this solicitation:

- Regular Research Awards
- Awards for conferences and community-development activities
- Doctoral Dissertation Research Improvement (DDRI) Grants
- Research Experience for Undergraduates (REU) Supplements

MMS also supports Faculty Early Career Development (CAREER) awards. Please see the [CAREER Program Web Site](#) for more information about this activity.

Awards: Standard Grant. Anticipated Funding: \$3,760,000.

Letter of Intent: Not Required

Proposal Submission Deadline: August 29, 2019

Contacts: Cheryl L. Eavey - Program Director, telephone: (703) 292-7269, email: ceavey@nsf.gov

- Liana A. Denola - Social Scientist, telephone: (703) 292-2675, email: ldenola@nsf.gov
 - Robbie W. Brown - Program Specialist, telephone: (703) 292-7264, email: rbrown@nsf.gov
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Grant Program: Secure and Trustworthy Cyberspace Frontiers (SaTC Frontiers)

Agency: National Science Foundation NSF 19-572

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19572/nsf19572.htm>

Brief Description: In today's increasingly networked, distributed, and asynchronous world, cybersecurity involves hardware, software, networks, data, people, and integration with the physical world. Society's overwhelming reliance on this complex cyberspace, however, has exposed its fragility and vulnerabilities that defy existing cyber-defense measures; corporations, agencies, national infrastructure and individuals continue to suffer cyber-attacks. Achieving a truly secure cyberspace requires addressing both challenging scientific and engineering problems involving many components of a system, and vulnerabilities that stem from human behaviors and choices. Examining the fundamentals of security and privacy as a multidisciplinary subject can lead to fundamentally new ways to design, build and operate cyber systems, protect existing infrastructure, and motivate and educate individuals about cybersecurity. The Secure and Trustworthy Cyberspace (SaTC) program welcomes proposals that address cybersecurity and privacy, and draw on expertise in one or more of these areas: computing, communication and information sciences; engineering; economics; education; mathematics; statistics; and social and behavioral sciences. Proposals that advance the field of cybersecurity and privacy within a single discipline or interdisciplinary efforts that span multiple disciplines are both encouraged.

Through this solicitation—under the SaTC umbrella—NSF specifically seeks ambitious and potentially transformative **center-scale projects** in the area of security and privacy that (1) catalyze far-reaching research explorations motivated by deep scientific questions or hard problems and/or by compelling applications and novel technologies that promise significant scientific and/or societal benefits, and (2) stimulate significant research and education outcomes that, through effective knowledge transfer mechanisms, promise scientific, economic and/or other societal benefits. The goal of the SaTC Frontiers program is to advance the frontiers of cybersecurity and privacy, and the areas listed in the [SaTC program solicitation](#) are meant to be illustrative but not exhaustive.

Awards: Continuing Grant. The SaTC Frontiers program will support proposals from \$5,000,000 to \$10,000,000 in total budget, with durations of up to five years. Anticipated Funding: \$15,000,000.

Letter of Intent: July 05, 2019

Proposal Submission Deadline: September 30, 2019

Contacts: Nina Amla, Program Director, CISE/CCF, telephone: (703) 292-7991, email: namla@nsf.gov

- Shannon I. Beck, Associate Program Director, CISE/CNS, (703) 292-2487, email: sbeck@nsf.gov

National Institutes of Health

Grant Program: BRAIN Initiative: Development of Next Generation Human Brain Imaging Tools and Technologies (U01 Clinical Trial Not Allowed)

BRAIN Initiative: Proof of Concept Development of Early Stage Next Generation Human Brain Imaging (R01 Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-EB-19-002 RFA-EB-19-001

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-EB-19-002.html>

<https://grants.nih.gov/grants/guide/rfa-files/RFA-EB-19-001.html>

Brief Description: The long-term objective of the overall BRAIN initiative is to accelerate technology development and the use of tools for acquiring fundamental insight about how the nervous system functions in health and disease. This FOA aims to support early stage development of entirely new and novel noninvasive human brain imaging technologies and methods that will lead to transformative advances in our understanding of the human brain.

The FOA solicits unusually bold and potentially transformative approaches and supports small-scale, proof-of-concept development of human brain imaging based on exceptionally innovative, original and/or unconventional concepts. The goal is to accelerate early stage development of promising and entirely new concepts that require some initial stage of development and testing before launching into full-scale tool development. Applications submitted in response to this FOA should focus on innovative approaches and proof-of-principle initial stage development for breakthrough, noninvasive imaging technology to measure human brain processes in ways that are currently unachievable via imaging technologies in live persons. The proposed concepts and approaches are expected to be high-risk, high-impact, and disruptive. Innovative, impactful next generation imaging tools span a wide array of approaches. These include hardware, software, and methods that have a potential to revolutionize the way noninvasive human neuroimaging is conducted today.

These FOAs solicits applications proposing early stage (**RFA-EB-19-001**) and full (**RFA-EB-19-002**) development of entirely new concepts for next generation human brain imaging, including but not limited to:

- New classes of noninvasive human neuroimaging
- Disruptive, new approaches that dramatically improve spatiotemporal resolution of current human neuroimaging, preferable at mesoscale level.
- Behaviorally active human neuroimaging that allows for movement during imaging in more natural environments while maintaining high resolution

- Innovative multi-modal or multi-scale approaches in human neuroimaging
- Developmental activities and efforts that may be supported by this FOA include but are not limited to:
- Developing actionable plans and approaches to further research concepts, and identify anticipated challenges for achieving the proposed team's research focus and goals
 - Conducting small-scale studies in mammals or humans
 - Developing prototypes, along with pilot studies to provide proof-of-concept and generate preliminary data

The breakthrough technologies that overcome existing barriers, if fully developed, would enable imaging and measuring brain processes in ways that are currently unachievable, thereby acquiring fundamental novel insight about how the human brain is organized and functions. The noninvasive imaging technologies can be focused at multiple scales from molecules to cells to circuits to larger structures. However, all technologies must have the goal of being applied to live, healthy humans. Applications that do not have this objective will not be considered responsive and will not be reviewed.

Award: Application budgets are not limited but need to reflect the actual needs of the proposed project. For Early Stage proposals: Application budgets are limited to \$300,000 in direct costs in any project year.

Letter of Intent: 30 days prior to the application due dates

Deadline: September 3, 2019 by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on this date. No late applications will be accepted for this Funding Opportunity Announcement.

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

Grant Program: Novel Technology Tools to Facilitate Research Using Next Generation Patient-derived Cancer Models (U01 Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-CA-19-055

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-CA-19-055.html>

Brief Description: Through this Funding Opportunity Announcement (FOA), the National Cancer Institute (NCI) will support the development of technology tools (see definition below) that will facilitate, accelerate, and/or enhance research using advanced human-derived next generation cancer models, such as organoids, conditionally reprogrammed cells, and others.

The studies proposed under this FOA must focus entirely on the next generation cancer models developed under the auspices of an international consortium with NCI participation, [Human Cancer Models Initiative](#).

"Technology tools" to be developed under this FOA may include new and/or optimized laboratory methods, reagents/reference materials, and/or appropriate software/bioinformatics tools. (The development of new hardware/equipment will not be supported).

The proposed technology tools are expected to a) facilitate the utilization of the cancer models, e.g., in terms of increasing robustness, rigor, and/or reproducibility of results, b) enable advanced interpretations of experiments in which these model are used, c) design and test NGCM genomic editing/manipulating reagents for all cancer and NGCM types, and d) develop robust approaches to method standardization, quality assurance/control, etc., that could serve as routine workflows/best practices for use in a wide range of laboratories.

The collective outcomes of projects under this FOA should facilitate the adoption of NGCMs by the research community and expedite sharing and validating of NGCMs-derived results. The new tools and broader use of NCGMs are expected to contribute to the progress in such areas as the identification of novel therapeutic targets, mechanisms of resistance, development of diagnostic and/or predictive biomarkers, and other aspects relevant to precision oncology.

Award: Application budgets are limited to \$700,000 in direct cost per year and must reflect the actual needs of the proposed project.

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

Deadline: August 30, 2019. All applications are due by 5:00 PM local time of applicant organization. All [applications](#) allowed for this funding opportunity announcement are due on the listed date(s).

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

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

Grant Program: BRAIN Initiative: Non-Invasive Neuromodulation - New Tools and Techniques for Spatiotemporal Precision (R01 Clinical Trial Optional)

Agency: National Institutes of Health RFA-MH-20-310

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-MH-20-310.html>

Brief Description: This FOA solicits grant applications in two related but distinct areas.

The first area is in the development and testing of novel tools and methods of neuromodulation that go beyond the existing stimulation methods. The rationale for this objective is that existing magnetic and electrical stimulation methods have limited spatial and temporal precision. To overcome these obstacles and move beyond incremental advances in the field, collaborations between physicists, engineers, neuroscientists, and clinicians are encouraged. The fresh perspective of such integrative teams would enable the development and testing of novel approaches that leverage other types of energy in a way that can lead to novel tools for scientific discovery and for therapeutic brain stimulation with high spatial and temporal resolution. This type of application may be in the initial stages and may therefore still be in the animal testing phase; however, the proposed tools and methods must be adaptable for use in humans. In recognition of the fact that these methods might be in early stages of development, work with human volunteers can, but does not need to, be included.

The second distinct area that this FOA seeks to encourage is the significant improvement of existing stimulation methods. Applications should propose technology improvements and testing methods in areas such as, but not limited to: (1) substantial improvement of the focality and depth of penetration of the stimulus, (2) prevention of extraneous stimulation (e.g. auditory clicking, scalp sensation, stimulation of non-target brain regions), (3) integration with endogenous rhythmic activity and advancing closed-loop stimulation capabilities, (4) use in natural ambulatory settings such as home or community settings, (5) improved sham and control conditions, and (6) development of multi-modal non-invasive recording plus brain stimulating devices.

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

Letter of Intent: August 03, 2019

Deadline: September 03, 2019 and February 14, 2020, by 5:00 PM local time of applicant organization.

All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates. No late applications will be accepted for this Funding Opportunity Announcement.

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

Grant Program: Bridges to the Doctorate Research Training Program (T32)

Agency: National Institutes of Health PAR-19-300

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-19-300.html>

Brief Description: The **Overarching Objective** of this Bridges to the Doctorate Research Training program is to develop a diverse pool of well-trained Ph.D. biomedical scientists, who have the following technical, operational, and professional skills:

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

Diversity at all levels—from the kinds of science to the regions in which it is conducted to the backgrounds of the people conducting it— contributes to excellence in research training environments and strengthens the research enterprise. This FOA is intended to support outstanding research training programs that will enhance diversity at all levels. As part of a larger initiative to enhance diversity, the Bridges to the Doctorate Research Training program will support trainees enrolled full-time at institutions with terminal master’s degrees in the biomedical sciences to transition into and complete biomedically relevant Ph.D. programs within partnering research-intensive institutions.

Award: Application budgets are not limited but need to reflect the actual needs of the proposed project. NIGMS expects to fund programs at or below 15 trainees, as appropriate to the institutional capabilities.

Letter of Intent: Not required

Deadline: September 25, 2019; September 25, 2020; September 27, 2021, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

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

Grant Program: Mechanistic Basis of Diffuse White Matter Disease in Vascular Contributions to Cognitive Impairment and Dementia (VCID)(R01 Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-NS-19-039

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-19-039.html>

Brief Description: Projects that elucidate cellular and molecular causes, progression and neural consequences of diffuse white matter disease including deep, small vessel cerebrovascular disease such as multifocal, small, silent brain infarcts frequently associated with VCID are within the scope of this FOA. Diffuse white matter disease preferentially affects deep brain regions, and as such has been more difficult to study than cortical based vascular or tissue pathology. Applications may focus on diffuse white matter disease extending out from the periventricular surfaces, diffuse white matter disease in subcortical white matter, or diffuse white matter disease that is accompanied by arteriosclerosis in deep penetrating arteries and with multiple infarcts in the basal ganglia, brainstem or cerebellum. This FOA specifically promotes research utilizing methods that can address mechanisms of pathological events in vessels and tissue that were previously poorly accessible and therefore may not have been as well studied, such as

periventricular white matter, basal ganglia, brainstem, deep cerebellum or subcortical white matter. Applications may use (or further develop) state of the art and emergent technologies that are poised to advance mechanistic understanding of diffuse white matter disease in VCID. Accordingly, new tools, some developed as part of the [BRAIN Initiative](#), may be useful to approach the scientific questions posed by this FOA.

Proposed research may be performed using model systems, including in vivo and ex vivo models, as well as models established using cells, including but not limited to human cells.

Human subjects research may be proposed only if it further informs cellular and molecular mechanistic studies that are the main focus here.

Cognitive assessments (in humans and animals) as they relate to disease mechanisms and progression are within the scope of this FOA; however, molecular, cellular, tissue mechanisms and the consequences of diffuse white matter disease on neural circuit function are the main foci of interest. Cognitive assessments are not a requirement to be responsive.

Studies that investigate the interplay of vascular mechanisms as well as co-morbidities with diffuse white matter cerebrovascular disease may be of interest, including, for example: hypertension, diabetes and other metabolic disorders, Alzheimer's type dementia, cerebral amyloid angiopathy, inflammation, dyslipidemia, and other known risk factors in cerebro- and cardiovascular disease.

The physiological consequences of diffuse white matter disease on local axon and neural circuit function are almost completely unknown, and are within the scope of this FOA.

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

Letter of Intent: July 14, 2019

Deadline: August 14, 2019, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on 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: Non-Invasive Neurostimulation in AD/ADRD (R01 Clinical Trial Optional)

Agency: National Institutes of Health PAR-19-298

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-19-298.html>

Brief Description: This FOA encourages applications that provide studies of initial efficacy of non-invasive neurostimulation, such as TMS, transcranial direct current stimulation (tDCS), transcranial alternating current stimulation (tACS), or transcutaneous vagal nerve stimulation (tVNS).

Applications that use realistic head modeling, provide individualized targeting based on unique anatomical features of participants, and evaluate target engagement are of particular interest.

Topics of interest for this FOA include, but are not limited to, the following:

- Studies to rigorously evaluate initial efficacy of the intervention(s).
- Multi-modal or combinations therapies with other pharmacological or non-pharmacological interventions.
- Studies to refine intervention strategy. These studies could determine appropriate dosage of stimulation (e.g., amplitude or duration), brain region to be targeted, or whether stimulation in general or in combination with training for a cognitive task is most beneficial (i.e., “online” or “offline” stimulation).
- Studies to define and refine the target population.

Examples of studies that are outside of the scope of this FOA include the following:

- Development of neurostimulation devices, or refinement of the devices themselves.
- Use of invasive neurostimulation devices.

The National Institute of Mental Health (NIMH) is particularly interested in pilot clinical trials addressing non-invasive neurostimulation in the treatment of the neuropsychiatric symptoms (NPS) or behavioral

and psychological symptoms of dementia of AD/ADRD (i.e., aggression, psychosis, anxiety, apathy, depression, agitation, sleep disturbances, and wandering).

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

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

Deadline: [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 due date for this FOA is October 5, 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 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 agency¹ 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

Grant Program: Advanced Transportation and Congestion Management Technologies Deployment Initiative

Agency: Department of Transportation 693JJ319NF00003

Website: <https://www.fhwa.dot.gov/fastact/factsheets/advtranscongmtfs.cfm>

Brief Description: The DOT hereby requests applications to result in awards to eligible entities to develop model deployment sites for large scale installation and operation of advanced transportation technologies to improve safety, efficiency, system performance, and infrastructure return on investment. Grant recipients may use funds under this program to deploy advanced transportation and congestion management technologies, including—

- advanced traveler information systems;
- advanced transportation management technologies;
- infrastructure maintenance, monitoring, and condition assessment;
- advanced public transportation systems;
- transportation system performance data collection, analysis, and dissemination systems;

¹ The U.S. Department of Education publishes a list of nationally recognized accrediting agencies on <https://www.ed.gov/accreditation>

- advanced safety systems, including vehicle-to-vehicle and vehicle-to-infrastructure communications;
- technologies associated with autonomous vehicles, and other collision avoidance technologies, including systems using cellular technology;
- integration of intelligent transportation systems with the Smart Grid and other energy distribution and charging systems;
- electronic pricing and payment systems; or
- advanced mobility and access technologies, such as dynamic ridesharing and information systems to support human services for elderly and disabled individuals. [23.U.S.C. 503(c)(4)(E)]

Awards: Up to \$60 million in Federal funding to provide grants to eligible entities to develop model deployment sites for large scale installation and operation of advanced transportation technologies to improve safety, efficiency, system performance, and infrastructure return on investment

Proposal Deadline: July 19, 2019

Contact Information: Submit Questions to: ATCMTD@dot.gov

Grant Program: FY 2019 National Infrastructure Investments

Agency: Department of Transportation DTOS59-19-RA-BUILD

Website: <https://www.transportation.gov/buildgrants/build-nofo>

Brief Description: The Consolidated Appropriations Act, 2019 (Pub. L. 116-6, February 15, 2019) (“FY 2019 Appropriations Act”) appropriated \$900 million to be awarded by the Department of Transportation (“DOT”) for National Infrastructure Investments. This appropriation stems from the program funded and implemented pursuant to the American Recovery and Reinvestment Act of 2009 (the “Recovery Act”) and is known as the Better Utilizing Investments to Leverage Development, or “BUILD Transportation grants,” program. Funds for the FY 2019 BUILD Transportation grants program are to be awarded on a competitive basis for surface transportation infrastructure projects that will have a significant local or regional impact. The purpose of this notice is to solicit applications for BUILD Transportation grants.

The FY 2019 BUILD Transportation grant program will make awards to surface transportation infrastructure projects that will have a significant impact throughout the country. Each section of this notice contains information and instructions relevant to the application process for these BUILD Transportation grants, and all applicants should read this notice in its entirety so that they have the information they need to submit eligible and competitive applications. For this round of BUILD Transportation grants, the maximum grant award is \$25 million, and no more than \$90 million can be awarded to a single State, as specified in the FY 2019 Appropriations Act. Per statute, the FY 2019 selection criteria are the same as under the FY 2017 TIGER program, although the description for each criterion has been updated. For FY 2019 BUILD Transportation grants, the definitions of urban and rural areas differ from previous rounds. Additionally, not more than 50 percent of funds will be awarded to projects located in urban and rural areas, respectively.

Awards: The FY 2019 Appropriations Act specifies that BUILD Transportation grants may not be less than \$5 million and not greater than \$25 million, except that for projects located in rural areas (as defined in Section C.3.ii.) the award size is \$1 million. There is no minimum award size, regardless of location, for BUILD Transportation planning grants.

Proposal Deadline: July 15, 2019

Contact Information: Program staff will address questions to BUILDgrants@dot.gov throughout the application period.

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

Grant Program: Securing Information for Encrypted Verification and Evaluation (SIEVE)

Agency: Department of Defense DARPA - Information Innovation Office HR001119S0076

Website: <http://www.darpa.mil/work-with-us/opportunities>

Brief Description: DARPA is soliciting innovative research proposals in the area of zero-knowledge proofs for complex, DoD-relevant capabilities. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice. This Broad Agency Announcement (BAA) is being issued, and any resultant selection will be made, using procedures under Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016. Any negotiations and/or awards will use procedures under FAR 15.4. Proposals received as a result of this BAA shall be evaluated in accordance with evaluation criteria specified herein through a scientific review process.

The SIEVE program has been organized into three (3) phases; all phases will be awarded at once if the proposal is selected (there will not be separate options). Phase 1 will be 18 months, followed by an 18-month Phase 2, and then concluded with Phase 3 at 12 months. • Phase 1 will emphasize initial development to demonstrate feasibility of encoding DoD-relevant statements into IRs and for giving efficient ZK proofs in DoD-relevant scenarios. • Phase 2 will emphasize developing an initial integrated pipeline to take DoD-relevant, IREncoded statements and provide ZK proofs for them. • Phase 3 will emphasize optimization and scaling techniques.

Awards: Various

Proposal Deadline: Proposers Day: July 17, 2019 o Abstract Due Date: July 31, 2019, 12:00 noon (ET)
o Proposal Due Date: September 20, 2019, 12:00 noon (ET)

Contact Information: Dr Joshua Baron, Program Manager, DARPA/I2O; BAA Email: SIEVE@darpa.mil

Grant Program: Science of Artificial Intelligence – Basic and Applied Research for the Naval Domain

Agency: Department of Defense Office of Naval Research N00014-19-S-SN08

Website: <https://www.onr.navy.mil/en/work-with-us/funding-opportunities>

Brief Description: ONR is interested in receiving white papers and proposals in support of advancing artificial intelligence for future naval applications. Work under this program will consist of basic and applied research, and therefore projects would be funded under Budget Activities 1 & 2 (as defined in the DoD Financial Management Regulation Vol. 2B, Ch. 5). The overall S&T efforts will be conducted at the Technology Readiness Level (TRL) 1-5 stage. Topic 1 Title: AI for Predictive Maintenance (AI Applied Research); Topic 2 Title: Rapid Learning of Task Procedures (AI Applied Research); Topic 3 Title: Scalable Verification and Validation Tools for Artificial Intelligence in the Naval Domain (AI Fundamental and Applied Research); Topic 4 Title: Brain-Inspired Deep Learning with Spiking Neurons (AI Fundamental Research); Topic 5 Title: Brain-based computation (AI Fundamental Research); Topic 6 Title: Explainable AI Systems (AI Fundamental and Applied Research); Topic 7 Title: Mission-focused AI (AI fundamental and applied Research); Topic 8 Title: Predictive Adaptations to Support Human Performance and Injury Prevention (Applied Research)

Awards: Various

Proposal Deadline:

White Paper Submission 15 August 2019 1400 Eastern Local Time Notification of White Paper Valuation* 15 September 2019 Full Proposal Submission 15 October 2019 1400 Eastern Local Time Full Proposal Selections* 01 November 2019 Awards* 01 March 2020 Note: *These are approximate dates

Contact Information: Topic 1: Dr. Thomas McKenna, ONR 34, 703-696-4503, tom.mckenna@navy.mil
Dr. Robert Brizzolara, ONR 331, 703-696-2597, robert.brizzolara@navy.mil Topic 2: Dr. Jeffrey Morrison, ONR 341, jeffrey.g.morrison@navy.mil 703-696-4875 Topic 3: Marc Steinberg, Code 351, marc.steinberg@navy.mil 703-696-5115 Topic 4: Dr. Thomas McKenna, ONR Code 341, 703-696-4503, tom.mckenna@navy.mil Topic 5: Dr. Thomas McKenna, ONR 341. 703-696-4503, tom.mckenna@navy.mil
Dr. Harold Hawkins, ONR 341, 703-696-4323, harold.hawkins@navy.mil Dr. Behzad Kamgar-Parsi, ONR 311, 703-696-5754, behzad.kamgarparisi@navy.mil Topic 6 Martin Kruger, ONR 341, martin.kruger1@navy.mil 703-696-5349 Topic 7: Martin Kruger, ONR 341, martin.kruger1@navy.mil 703-696-5349 Topic 8: Dr. Peter Squire, ONR 341, peter.squire@navy.mil 703-696-0407

Grant Program: Artificial Intelligence/Machine Learning Enabled Capabilities

Agency: Department of Defense Office of Naval Research N00014-19-S-SN07

Website: <https://www.onr.navy.mil/en/work-with-us/funding-opportunities>

Brief Description: ONR is interested in receiving proposals that leverage state of the art AI/ML techniques to enable novel capabilities related to mission planning, as well as: command and control, logistics, intelligence and training for Navy and USMC forces. This Special Notice does not focus on basic research to develop totally new and/or unproven AI/ML techniques. Any such basic research may be the subject of a separate Special Notice on the Science of AI. Rather, this Special Notice draws attention to research areas of interest that include but are not limited to the following:

Analysis of Factors Affecting Possible Courses of Action

1. Develop and demonstrate the use of natural language processing to enable machines to tailor warfighter support based on commander's intent (CI) and rules of engagement (ROE) to include:
 - 1.1. Develop tools that can take written text describing ROEs for warfighters and translate them into a machine readable / human interpretable form that may then be processed by machine learning algorithms in the development and assessment of Courses of Action (COAs) for compliance with ROEs & CI.
 - 1.2. Develop tools that can take real time/near real time updates to or clarification of CI / ROE, and appropriately modify the machine representation of CI / ROEs to reflect these updates. These tools would document changes and facilitate curation of CI/ROEs to detect conflicts that might emerge over the course of a mission.

2. Develop AI capabilities that enable identification and orderly examination of all factors that could affect mission execution and expected outcomes.
 - 2.1. Develop a human interpretable dashboard for assessing COAs and recommended COAs status for both the consistency of evolving ROEs, their compliance with human understanding of CI/ROEs, and expectations for mission effectiveness given current CI/ROEs. The dashboard should highlight inconsistencies and missing ROEs required for mission execution. Provide a human interpretable explanation for changes in recommendations developed by AI/ML based algorithms that reflect evolving ROEs.

3. Develop AI capabilities that estimate mission search areas based explicitly stated, or implicitly learned, models of sensor/weapon performance, adversary (enemy) courses of action, and environmental factors that would impact sensor and/or weapon performance.

ECOAs Development

4. Formulate learning mechanisms to enable application of knowledge regarding previous courses of action (under similar but potentially different) enemy commander's intent and enemy rules of engagement. Demonstrate utility of learned relationships to more quickly develop new courses of action under current enemy commander's intent and enemy rules of engagement.

5. Formulate AI approaches/methods to predict and/or determine most likely, and most dangerous, enemy courses of action (ECOAs).

6. Develop methods to determine significant threat entity patterns of life (PoLs) based upon factual and/or historical behavioral data and/or based on results derived from simulation.

Awards: Various

Proposal Deadline: Recommended White Paper Submission Date* 15 July 2019 COB Notification of White Paper Valuation* 7 August 2019 COB Recommended Full Proposal Submission 6 September 2019 COB Notification of Selection: Full Proposals * 4 October 2019 COB Awards * 7 Feb 2020 COB

Contact Information: Technical Points of Contact: Martin Kruger Martin.kruger1@navy.mil

Grant Program: FY2020 Office of Naval Research (ONR) Young Investigator

Agency: Department of Defense Office of Naval Research N00014-19-S-F008

Website: <https://www.onr.navy.mil/en/work-with-us/funding-opportunities>

Brief Description: Investigator Program (YIP). ONR's Young Investigator Program seeks to identify and support academic scientists and engineers who are in their first or second full-time tenure-track or tenure-track-equivalent academic appointment, who have received their PhD or equivalent degree on or after 01 January 2012, and who show exceptional promise for doing creative research. The objectives of this program are to attract outstanding faculty members of Institutions of Higher Education (hereafter also called "universities") to the Department of the Navy's Science and Technology (S&T) research program, to support their research, and to encourage their teaching and research careers. Individuals who are holding U.S. non-profit equivalent positions are encouraged to apply.

Proposals addressing research areas (as described in the ONR Science and Technology Department section of ONR's website at www.onr.navy.mil) which are of interest to ONR program officers will be considered. Contact information for each division (a subgroup of an S&T Department) is also listed within the S&T section of the website.

Applicants are STRONGLY ENCOURAGED to contact the appropriate Program Officer who is the point of contact for a specific technical area to discuss their research ideas. A list of most Program Officers and their contact information can be found at: <https://www.onr.navy.mil/our-research/technology-areas> or at: <https://www.onr.navy.mil/our-research/our-program-managers>

Awards: Various

Proposal Deadline: August 16, 2019

Contact Information: Veronica Lacey Grants Officer Phone 703-696-2593

[Grants.gov Questions](#)

Grant Program: DSO Office-wide Broad Agency Announcement

Agency: Department of Defense DARPA HR001119S0071

Website: <https://www.darpa.mil/work-with-us/opportunities?Filter=&Filter=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 FAQ Submission Deadline: June 2, 2020, 4:00 p.m. See Section VIII.A. o Full Proposal Due Date: June 12, 2020, 4:00 p.m.

Contact Information: BAA Email: HR001119S0071@darpa.mil

Grant Program: Program Announcement for Disruptioneering; Disruptive Capabilities for Future Warfare

Agency: Department of Defense DARPA DARPA-PA-19-02 and HR001119S0054

Website:

https://www.fbo.gov/index?s=opportunity&mode=form&id=890c20829acd406c338ac6287403f970&tab=core&_cview=0

https://www.fbo.gov/index?s=opportunity&mode=form&id=e7248da47889d975d0ccb0261d002a9a&tab=core&_cview=1

Brief Description: The mission of the Defense Advanced Research Projects Agency is to make strategic, early investments in science and technology that will have long-term positive impact on our nation's national security. As part of this mission, DARPA makes high-risk, high-reward investments in science and technology that have the potential to disrupt current understanding and/or approaches. The pace of discovery in both science and technology is accelerating worldwide, resulting in new fields of study and the identification of scientific areas ripe for disruption. While DARPA's existing investment strategy continues to yield success, in order to capitalize on these new opportunities, its approach to investing must include faster responses with more small, targeted investments. This new approach is called Disruptioneering. Disruptioneering will enable DARPA to initiate a new investment in less than 90 days from idea inception.

HR001119S0054: The Tactical Technology Office of the Defense Advanced Research Projects Agency is soliciting executive summaries, proposal abstracts and proposals for applied research, advanced technology development, and platform demonstrations that aim to enable disruptive capabilities for future warfare.

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: RFP is open until March 18, 2020

HR001119S0054: June 11, 2020

Contact Information: BAA Coordinator DARPA-PA-19-02@darpa.mil

Grant Program: Materials Science in Extreme Environments University Research Alliance (MSEE-URA)

Agency: Department of Defense Defense Threat Reduction Agency HDTRA1-19-S-0003-MSEE-URA

Website: <https://www.grants.gov/>

Brief Description: DTRA is seeking to develop the capability to understand material properties and associated mechanisms in various extreme environments that may lead to future exploitation. The approach is to realize a materials and properties capability by establishing a new University Research Alliance (URA) focused on Materials Science in Extreme Environments (MSEE). The focus of the MSEE-URA will be to advance the fundamental understanding of various material properties and

mechanisms in non-equilibrium high pressure, high temperature, and high photon number regimes. The foundational problem to be addressed by the MSEE-URA is the lack of knowledge and predictive modeling capability for various material classes and their associated formation/decomposition mechanisms within harsh Weapons of Mass Destruction (WMD)- related environments. That lack of knowledge poses a challenge in the ability to control and exploit future material-WMD interactions. To address this problem, the MSEE-URA seeks proposals focusing on understanding, controlling, characterizing, and predicting interactions of materials in extreme pressure, temperature, and optical environments. A wide range of WMD-relevant environments are of interest including: conventional fireballs, nuclear fireballs, photon-induced blow-off, plasmas, and warm dense matter. These environments are challenging not only due to the temperatures, pressures, and energies involved, but also the rapid evolution of the environments and the need to model across multiple time, energy, and physical time scales. Limited experimental testing opportunities and diagnostics adds to the challenge of understanding material responses in these extreme environments. A comprehensive integrated and collaborative approach is required to make progress on these challenges.

The four research areas for the MSEE-URA are as follows and include possible desired research outcomes within those four research areas. • Material Properties and Failure – (a) Produce materials constitutive models and failure models applicable at fast rates ($10^2 - 10^6 \text{ s}^{-1}$) for hard rock and cementitious materials,; (b) Experimentally identify material properties contributing to sensitivity of energetics and composite materials (including reactives and additively manufactured materials); (c) Identify material property/numerical sources of uncertainty and sensitivities for nuclear models. • Materials Development and Manufacturing for Synergistic Effects - (a) Develop structure-function-property relationships of additively manufactured reactive materials, additive manufacturing of multifunctional nanocomposites, ignition/combustion, dynamic imaging of post combustion fields; (b) Fabricate multifunctional shielding materials that incorporate electromagnetic pulse (EMP) shielding while maintaining other requirements such as weight, cost, ballistic protection, ionizing radiation protection; (c) Identify combinations of energetics/non-energetic materials that produce synergistic effects and/or identify material properties that may lend well to tailored performance. • Chemistry in Extreme Environments - (a) Construct validation models that predict nuclear fireball behavior in complex urban environments and identify fundamental experimental measurements that could improve models. (b) Develop high temperature/high heating rate chemical mechanisms and associated Arrhenius kinetic models for low vapor pressure organophosphorous species. • Photon-Material Interactions - (a) Improve understanding and predictive models of X-ray energy deposition, material blow-off, and plasma generation and evolution for ensuring the survivability of space solar arrays and strategic systems; (b) Improve models, materials, and approaches for utilizing direct laser impulse testing to simulate blow-off impulse of strategic systems.

Awards: The CA may range from \$5M to \$7M annually (total, including both direct and indirect costs) depending on the nature and the scope of work.

Proposal Deadline: Applicants must submit a Letter of Intent (LoI) no later than 21 June 2019 to be considered eligible to submit a Phase I pre-proposal. Phase I pre-proposal submissions are due on 17 July 2019

Contact Information: Questions regarding the content of this BAA must be addressed to the following email address: DTRA-URA-Program@mail.mil

Grant Program: DoD Psychological Health and Traumatic Brain Injury, Federal Interagency Traumatic Brain Injury Research Analysis Award

Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-19-PHTBIRP-FITBIRA

Website: <https://ebrap.org/eBRAP/public/index.htm>

Brief Description: FITBIR is an informatics system created through a collaborative effort between the USAMRMC and the National Institute of Neurological Disorders and Stroke (NINDS) of the National Institutes of Health (NIH). Based on the award-winning Biomedical Research Informatics Computing System (BRICS) platform, FITBIR serves as the premier platform to share human subject data across the TBI field. The goal of FITBIR is to accelerate research progress by allowing for re-analysis, aggregation, and rigorous comparison of deidentified data to facilitate new insights in the understanding, diagnosis, and treatment of TBI. FITBIR's usefulness is facilitated by the use of Global Unique Identifiers (GUIDs) and common data elements (CDEs). GUIDs are unique alpha-numeric identifiers for study participants that facilitate deidentified data sharing and tracking across multiple research sites and studies. A GUID is generated from a subject's personally identifiable information (PII) using a complex algorithm; the PII cannot be reverse engineered from the GUID. Only a subject's GUID is shared with FITBIR and the subject's PII remains protected. CDEs, developed as part of an initiative led by NINDS, are a set of data collection standards within the neuroscience research community. CDEs are identified and defined by subject matter experts. CDE development is an ongoing process that evolves with the needs of the field. Currently, FITBIR contains over 3.7 million (M) data records for over 70,000 subjects from studies funded by the DoD and NINDS. This comprehensive dataset includes demographics, outcome assessments, imaging, and biomarkers. During an award's period of performance, the study data are in a sequestered state. However, after the period of performance ends, the data are shared publicly to all researchers with active FITBIR data access accounts. As of May 2019, data from 15 completed studies and over 4,500 research subjects are shared publicly. Please visit the FITBIR website at <https://fitbir.nih.gov/> for more information on FITBIR, currently available data, and policies for accessing shared data.

Awards: The anticipated total costs budgeted for the entire period of performance for an FY19 JPC-6/CCCRP PH/TBI FITBIR Analysis Award will not exceed \$750,000.

Proposal Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), July 10, 2019 • Application Submission Deadline: 11:59 p.m. ET, August 1, 2019

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

Grant Program: DoD Vision, Investigator- Initiated Research Award

Agency: Department of Defense Dept. of the Army – USAMRAA W81XWJ-19-VRP-IIRA

W81XWH-19-VRP-TRA : DoD Vision, Translational Research Award

Website: <https://ebrap.org/eBRAP/public/index.htm>

Brief Description: To meet the intent of the award mechanism, applications to the FY19 VRP Investigator-Initiated Research Award (IIRA) must address research in one or more of the following Focus Areas: • Eye injury or visual dysfunction as related to a military-relevant traumatic event. Examples of military-relevant trauma may include, but are not limited to: ○ Blast, blunt, thermal, or chemical trauma ○ Trauma caused by directed energy weapons such as laser, microwaves, and particle beams • Diagnosis and treatment of eye injuries in austere environments and prolonged field care settings.

The FY19 VRP IIRA is intended to support studies that will yield highly impactful discoveries or major advancements in the research and/or patient care of eye injury and/or visual dysfunction as related to military-relevant trauma. Research projects may focus on any phase of research (e.g., basic, translational, applied, clinical, observational), excluding clinical trials. The research idea or solution should be innovative or novel, or a significant advancement over existing ideas or solutions, as applicable.

Awards: Funding Level 1 supports exploratory, innovative, high-risk/high-reward research that is in the earliest stages of idea development.

Funding Level 2 supports the advancement of more mature research toward clinical translation. The proposed research must be innovative or novel or offer significant refinements, improvements, or new applications of existing ideas or solutions.

Estimated Total Program Funding: \$6,080,000

Proposal Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), August 6, 2019
• Invitation to Submit an Application: September 2019 • Application Submission Deadline: 11:59 p.m. ET, December 6, 2019

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

Grant Program: DoD Duchenne Muscular Dystrophy, Idea Development Award

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

Website: <https://ebrap.org/eBRAP/public/index.htm>

Brief Description: All applications for the FY19 DMDRP Idea Development Award must address opportunities and challenges in the development of safe and effective macromolecular and cellular therapies that address primary pathology of DMD. Eligible therapeutic strategies include: gene therapy, genome editing, oligonucleotide therapies, exon skipping, protein therapeutics, and cell therapies. Studies proposed under this award may include: • Delivery to skeletal muscle and heart (e.g., ligand assisted, nanoparticles, identification of biological barriers to delivery, and alternative vectors) • Immunosuppression, vector modification, and other strategies to facilitate repeat administration of biologic therapies • Targeting muscle stem cells • Cell-based therapies, including but not limited to: selection of novel cell types, expansion, cell delivery and homing, differentiation, and integration

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

Awards: The anticipated direct costs budgeted for the entire period of performance for an FY19 DMDRP Idea Development Award will not exceed \$350,000.

The FY19 appropriation is \$2.8M.

Proposal Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), August 21, 2019
• Invitation to Submit an Application: September 27, 2019 • Application Submission Deadline: 11:59 p.m. ET, December 4, 2019

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

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. Grant funds will be awarded to an apprenticeship partnership of public and private sector entities which together seek to develop and implement new apprenticeship models; or expand an existing apprenticeship program to a new industry sector or occupation, a new population, on a local/regional, statewide, or national scale. A lead applicant may include any of the following organizations: an institution of higher education (IHE), an IHE representing a consortium of institutions of higher education, as defined in Section 102 of the Higher Education Act of 1965 (20 U.S.C. 1002); or a state system of higher education, such as a community college system office or a single state higher educational board, or a nonprofit trade, industry or employer association, labor union, or labor management organization.

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. The amount of grant funding an applicant can receive will depend on the proposed geographic scope of the apprenticeship project. Additional grants may be awarded depending on availability of funds.

Anticipated Funding: \$100,000,000

Proposal Deadline: The closing date for receipt of applications under this Announcement is 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: Chemical Mechanisms to Address New Challenges in Air Quality Modeling

Early Career: Chemical Mechanisms to Address New Challenges in Air Quality Modeling

Agency: Environmental Protection Agency EPA-G2019-STAR-C1 EPA-G2019-STAR-C2

Website: <https://www.epa.gov/research-grants/chemical-mechanisms-address-new-challenges-air-quality-modeling>

Brief Description: The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking applications proposing research to improve air quality models relevant to ozone, particulate matter (PM), regional haze, air toxics, and emerging pollutants. Specifically, this Request for Applications (RFA) is seeking research on the development of the component of an air quality model that represents the relevant atmospheric chemical reactions, which is known in this field of modeling as “the chemical mechanism.” The RFA seeks research on:

1. Development of data, methods, and software tools for generating explicit chemical mechanisms that a) have a coherent and integrated treatment of gas, aerosol, aqueous, and heterogenous chemistry, b) can be easily updated to reflect evolving kinetic, mechanistic, and theoretical knowledge and understanding, and c) are applicable to a wide range of atmospheric concentration regimes and environmental conditions;

2. Development and evaluation of algorithms, numerical techniques and software tools to reduce (i.e., simplify) detailed, integrated chemical mechanisms into application-specific condensed mechanisms appropriate for use in global and regional air quality models; and
3. Applications of new condensed mechanisms generated for broad applications or for specific conditions in global and regional air quality models to investigate air quality research topics relevant to air quality management in the United States.

The focus of this solicitation is on the development of chemical mechanisms relevant over multiple regimes (a wide range of concentrations, oxidant ratios, and temperatures, and multiple phases) and spatiotemporal scales within a framework that can generate mechanisms for current air quality assessments and have the flexibility to generate updated mechanisms as understanding of atmospheric chemistry evolves and new concerns emerge.

Awards: Potential Funding per Award: Up to a total of \$800,000 for regular awards, and up to a total of \$400,000 for early career awards, with a maximum duration of three years.

Submission Deadline: June 24, 2019: 11:59:59 pm Eastern Time

Contact: Technical Contact: Serena Chung; phone: 202-564-6069; email: chung.serena@epa.gov

Eligibility Contact: Ron Josephson; phone: 202-564-7823; email: josephson.ron@epa.gov Electronic

Submissions Contact: Debra M. Jones; phone: 202-564-7839; email: jones.debram@epa.gov

Grant Program: 2019 Healthy Communities Grant Program

Agency: Environmental Protection Agency EPA-R1-HC-2019

Website: <https://www3.epa.gov/region1/eco/uep/pdfs/2019-hcgp-rfa.pdf>

Brief Description: The Healthy Communities Grant Program is the U.S. Environmental Protection Agency, Region 1's (EPA New England) main competitive grant program to work directly with communities to support EPA's "Back-to-Basics" agenda to reduce environmental risks, protect and improve human health and improve the quality of life. The Healthy Communities Grant Program will achieve these goals through identifying and funding projects that:

- Target resources to benefit communities at risk [areas needing to create community resilience, environmental justice areas of potential concern, sensitive populations (e.g., children, elderly, tribes, urban and rural residents, and others at increased risk)].
- Assess, understand, and reduce environmental and human health risks.
- Increase collaboration through partnerships and community-based projects.
- Build institutional and community capacity to understand and solve environmental and human health problems.
- Advance emergency preparedness and ecosystem resilience.
- Achieve measurable environmental and human health benefits.

To qualify as eligible projects under the Healthy Communities Grant Program, proposed projects must: (1) be located in and/or directly benefit one or more of the Target Investment Areas; and (2) identify how the proposed project will achieve measurable environmental and/or public health results in one or more of the Target Program Areas. Please see Section III for further information on eligibility requirements.

Awards: Proposals may be submitted for amounts up to \$25,000. The project period will start no earlier than October 1, 2019 and can last for a one or two-year period.

Letter of Intent Deadline: Your organization's AOR must submit your complete application package electronically to EPA through Grants.gov no later than May 28, 2019, 11:59 PM ET.

Contact: Katie Marrese EPA New England 5 Post Office Square, Suite 100 (OEP06-2) Boston, MA 02109-3912 Phone: 617-918-1658 Fax: 617-918-0658

Marrese.Katie@epa.gov

Department of Energy

Grant Program: Electric Grid of Things

Agency: Department of Energy DE-FOA-0002092

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

Brief Description: The objective of this FOA is to conceive and develop scenarios, approaches, methodologies, tools, techniques and systems that maximize the bi-directional exchange of grid services while optimizing connectivity and information exchange at the grid edge to Internet of Things (IoT) interface that leads to enhanced system resilience and reliability. These advancements must be applicable to the scenario of maintaining energy surety to defense installations, where coordination between defense facilities, the utility, and surrounding Distributed Energy Resources(DER) can extend the functioning of those facilities through abnormal events.

Awards: Up to \$2,000,000

Proposal Submission Deadline: September 09, 2019

Contact: Sheldon E. Funk 304-285-0204 sheldon.funk@netl.doe.gov

Grant Program: Request for Information (RFI): Marine Sciences Laboratory

Agency: Department of Energy DE-FOA-0002123

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

Brief Description: The purpose of this RFI is to solicit feedback from industry, academia, research laboratories, government agencies, and other stakeholders on issues related to the growing Research and Development (R&D) interest in the use of the Pacific Northwest National Laboratory's (PNNL's) Marine Sciences Laboratory (MSL) facilities for renewable energy, maritime markets, and energy storage research, technology development and testing. This information will help DOE and PNNL prioritize resources and investments. This is solely a request for information and not a Funding Opportunity Announcement (FOA). EERE is not accepting applications.

Responses to this RFI must be submitted electronically to WPTORFI@ee.doe.gov no later than 5:00 p.m. on August 8, 2019. Responses must be provided as attachments to an email. Only electronic responses will be accepted.

This is a Request for Information (RFI) only. EERE will not pay for information provided under this RFI and no project will be supported as a result of this RFI. This RFI is not accepting applications for financial assistance or financial incentives.

Awards: TBD

Proposal Submission Deadline: Responses to this RFI must be submitted electronically to this inbox WPTORFI@ee.doe.gov

Contact: EERE_ExchangeSupport@hq.doe.gov Contact information for technical issues

NASA

Grant Program: ROSES 2019: Living With a Star Science

Agency: NASA NNH19ZDA001N-LWS

Website: <https://nspires.nasaprs.com/external/solicitations/summary.do?sollId=%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: University Leadership Initiative (ULI2)

Agency: NASA NNH18ZEA001N-ULI2

Website: <https://nspires.nasaprs.com/external/solicitations/summary.do?sollId=%7B0C9DAA3D-D086-0E16-55FD-E73B0015E0B9%7D&path=open&method=init>

Brief Description: ARMD created ULI for universities to take the lead, build their own teams, and set their own research path. ULI seeks new, innovative ideas that can complement the NASA ARMD portfolio and support the U.S. aviation community. ULI's strategic goals are: • Assist in achieving aviation outcomes defined in the ARMD Strategic Implementation Plan ("Strategic Plan") [1] through NASA-complementary research; • Transition research results to an appropriate range of stakeholders that leads to a continuation of the research. Transition can occur in a number of ways, including the following: o Creates a new product line in U.S. industry or a new ARMD project, o Whole ULI concept is transitioned to U.S. industry/ARMD project, o Part of the ULI concept is transitioned to U.S. industry/ARMD project, o ULI findings impact direction of U.S. industry/ARMD. • Provide broad opportunities for students at different levels, including undergraduate and graduate, to participate in aeronautics research; • Promote greater diversity in aeronautics through increased participation of minority-serving institutions and underrepresented university faculties in ULI activities. ULI provides the opportunity for university teams to exercise technical and organizational leadership in proposing unique technical challenges, defining interdisciplinary solutions, establishing peer review mechanisms, and applying innovative teaming strategies to strengthen the research impact.

Awards: Various

Notice of Intent: August 27, 2019

Proposal Deadline: Step 1 Proposals Due Aug 27, 2019

Contact: Koushik Datta Koushik Datta Koushik Datta

[Written responses will be posted on the solicitation website](#)

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?sollId={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

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

Agency: NASA NNH19ZDA001N-HTMS

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

Brief Description: The Heliophysics Theory, Modeling, Simulations (H-TMS) program is a component of the Heliophysics Research Program. Proposers interested in this program element are encouraged to see the overview of the Heliophysics Research Program in Appendix B.1 of this ROSES NRA. The H-TMS program was previously one element of the Heliophysics Grand Challenges Research (H-GCR) program (H-GCR-TMS, last competed in ROSES-2016 as program element B.5). Before that it was called "Heliophysics Theory Program" (HTP, last competed in ROSES-2013). For simplification, this program is now referred to as the Theory, Modeling, and Simulations (TMS) element in the Heliophysics program. The former Heliophysics Theory Program provides the foundation of the TMS element. Increasingly, as computing power becomes more affordable and more available, numerical simulations and modeling become tools that can and have been used synergistically with data analyses and rigorous theory development to solve the fundamental problems of Heliophysics. They lead the way to new understanding and drive science concepts for future strategic missions. The ultimate goal of TMS investigations is to provide a complete chain of reasoning extending from the basic laws of nature to comparison with observation to the identification of future quantitative tests of the behavior of the environment. NASA acknowledges this and renames the element "Theory, Modeling, and Simulations."

Awards: Various

Notice of Intent: Not Required

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

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

Grant Program: Astrophysics Research and Analysis: due dates TBD

Agency: NASA NNH19ZDA001N-APRA

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

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

Awards: Various

Notice of Intent: Not Required

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

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

Grant Program: Heliophysics System Observatory Data Support

Agency: NASA NNH19ZDA001N-HSODS

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

Brief Description: The Heliophysics System Observatory Data Support (HSO Data Support) program solicits proposals for ground-based solar and coronagraphic observations that would complement and provide context for the Parker Solar Probe (PSP) data set, and enable an enhanced science return from the mission. These observations are expected to cover as much as possible of the 30 days before and 30 days after the 2019 and 2020 perihelia: 1 September 2019, 29 January 2020, 07 June 2020, and 27 September 2020. HSO Data Support requires the acquisition, processing, and archiving of data from ground-based observatories; a limited amount of funding is available to cover required tasks in excess of normal operations. While NASA expects observatories to interact with the PSP science team and the Solar Data Analysis Center (SDAC) to optimize data acquisition and archiving, this solicitation does not support science investigations or any other task beyond those necessary for the archiving of the specified observations.

Awards: Various

Notice of Intent: Not Required

Proposal Deadline: August 01, 2019

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

National Endowment of Humanities

Grant Program: Public Humanities Projects

Agency: National Endowment for the Humanities 20190814-BP-BR-GE-GG-GI

Website: <https://www.neh.gov/grants/public/public-humanities-projects>

Brief Description: The Public Humanities Projects program supports projects that bring the ideas and insights of the humanities to life for general audiences through in-person programming. Projects must engage humanities scholarship to analyze significant themes in disciplines such as history, literature, ethics, and art history. This program supports projects in three categories: **Exhibitions** (permanent, temporary, or traveling); interpretive programs at **Historic Places**; and **Humanities Discussions** related to the 250th anniversary of the nation's founding.

Awards: Planning grants (up to \$75,000); Implementation grants (up to \$ 400,000)

Deadlines: Optional Draft due: July 3, 2019; Application due: August 14, 2019

Contact: If you have questions about the program, Contact the Division of Research Programs Team 202-606-8269 publicpgms@neh.gov

Grant Program: Summer Stipends

Agency: National Endowment for the Humanities 20190925-FT

Website: <https://www.neh.gov/grants/research/summer-stipends>

Brief Description: The National Endowment for the Humanities' Summer Stipends program aims to stimulate new research in the humanities and its publication. The program works to accomplish this goal by:

- Providing small awards to individuals pursuing advanced research that is of value to humanities scholars, general audiences, or both.
- Supporting projects at any stage of development, but most especially early-stage research and late-stage writing in which small awards are most effective
- Furthering the NEH's commitment to diversity and inclusion in the humanities by encouraging applications from independent scholars and faculty at Hispanic Serving Institutions, Historically Black Colleges and Universities, tribal colleges and universities, and community colleges

Summer Stipends support continuous full-time work on a humanities project for a period of two consecutive months. NEH funds may support recipients' compensation, travel, and other costs related to the proposed scholarly research.

Summer Stipends are awarded to individual scholars. Organizations are not eligible to apply.

Awards: Up to \$6,000

Deadlines: Application due: September 25, 2019

Contact: If you have questions about the program, Contact the Division of Research Programs Team 202-606-8200 fpiri@neh.gov

Grant Program: Fellowship Programs at Independent Research Institutions

Agency: National Endowment for the Humanities

Website: <https://www.neh.gov/grants/research/fellowship-programs-independent-research-institutions>

Brief Description: The Fellowship Programs at Independent Research Institutions (FPIRI) program supports institutions that provide fellowships for advanced humanities research in the United States and abroad, foster communities of intellectual exchange among participating scholars, and provide access to resources that might otherwise not be available to the participating scholars.

Fellowship programs may be administered by independent centers for advanced study, libraries, and museums in the United States; American overseas research centers; and American organizations that have

expertise in promoting humanities research in foreign countries. Individual scholars apply directly to the institutions for fellowships. In evaluating applications, consideration is given to the library holdings, archives, special collections, and other resources—either on site or nearby—that institutions make available to fellows.

Awards: Up to \$375,000

Deadlines:

Optional Draft due: July 10, 2019

Application due: August 21, 2019

Contact: If you have questions about the program, Contact the Division of Research Programs Team 202-606-8200 fpiri@neh.gov

Simon Foundation

Grant Program: Autism Research

Agency: Simon Foundation

Website: <https://www.sfari.org/grant/bridge-to-independence-award-request-for-applications/?tab=overview>

Brief Description: The foundation is inviting applications to its annual Bridge to Independence Award Program. Created in 2015, the program promotes talented early-career scientists by facilitating their transition to research independence and providing grant funding at the start of their professorships. Through the program, grants of \$495,000 over three years will be awarded to senior postdoctoral fellows who intend to seek a tenure-track faculty position during the upcoming academic year. The award will be activated upon assumption of a tenure-track professorship at a U.S. or Canadian research institution.

Although eligible applicants currently must be in a postdoc training position, the award itself is not a training fellowship but instead is a research grant to newly appointed faculty. The program's selection process is uniquely designed to enhance a BTI awardee's job prospects by providing a letter that specifies SFARI financial commitment to the research project once the awardee has secured a suitable faculty position. Applications are encouraged from postdoctoral fellows working on autism-related projects, but the award is also open to researchers who are not currently working on autism but are interested in starting research projects in this area and who have expertise that could positively impact research on this complex disorder.

Proposal Deadline: Letters of Intent and recommendation are due August 8. Upon review, selected applicants will be invited to submit a full proposal on a rolling basis between December 1, 2019, and December 1, 2020.

Mozilla

Grant Program: Mozilla Open Source Support (MOSS) Awards

Agency: Mozilla

Website: <https://www.mozilla.org/en-US/moss/>

Brief Description: Mozilla was born out of and remains part of the open source and free software movement. Through the Mozilla Open Source Support (MOSS) awards program, we recognize, celebrate, and support open source projects that contribute to Mozilla's work and to the health of the Internet. MOSS awards are available in the following tracks: Foundational Technology; Global Mission Partners; Secure Open Source Fund.

Track I: Foundational Technology

The Foundational Technology track supports open source projects that Mozilla relies on, either as an embedded part of our products or as part of our everyday work.

Tracks II & IV: Global Mission Partners

The Mission Partners track supports open source projects that significantly advance Mozilla's mission.

Track III: Secure Open Source Fund

The Secure Open Source ("SOS") track supports security audits for widely used open source software projects as well as the remedial work needed to rectify the problems found.

Proposal Deadline: MOSS applications are accepted on a rolling basis and are reviewed monthly by an expert selection panel. Reviewers include current Mozilla staff, senior Mozilla alumni, and other respected open source experts.

Contact: If interested, please send an email to Atam Dhawan (dhawan@njit.edu) or Richard Rosenberg at rnr@njit.edu

Streamlyne Question of the Week

Question: How can I add another investigator or my research ambassador to my proposal in order to help on budget preparation and edit proposal details?

Answer: Select the "Permissions" link from the left hand side of the main proposal screen in any proposal development document. From the Permissions screen you will be able to search for the person you wish to add and grant them a specific level of permission (aggregator, budget creator, viewer). After you select the appropriate person, click "Add" and they will be added to your proposal.

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

Streamlyne Information

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

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

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

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

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

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

Cristo Leon, CSLA Director of Research; (973) 596-6426; cristo.e.yanezleon@njit.edu
Sean Andrews, YWCC Director of Research; (973) 596-5352; sean.t.andrews@njit.edu
Iris Pantoja, NCE, CoAD and MTSM Project Manager; 973-596-4483; irp3@njit.edu

Need Information about Funding?

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

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

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

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

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

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

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

For any questions and additional information, please send an email to SVPR at dhawan@njit.edu.
