NJIT Research Newsletter

Issue: ORN-2020-10

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

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Special Announcements

NJIT Research Continuity Plan Update

To respond to the unprecedented challenge to the rapidly evolving COVID-19 outbreak, it is essential to minimize all on-campus research related activities to what is absolutely essential consistent with the NJIT business continuity plan.

Research and Research Labs Guidelines

All directors of research centers/laboratories and Principal Investigators (PIs) should immediately begin preparing for restricting on-campus research to activities only with minimal access to facilities for maintaining animals, unique reagents, and essential equipment and materials.

These restrictions will be disruptive to the scholarly activities and research productivity but are essential for the safety and health of everyone in the community. All researchers should plan to continue working on the grants and research projects remotely as much as possible and conduct meetings through WebEx and teleconferencing.

We will work together to minimize the potential disruptions and difficulties caused by the restrictions with on-campus activities and follow up with federal and other funding agencies as needed on the appropriate responses related to grant management and expectations.

All research work involving human subjects must follow the social distancing protocols and suspend any in-person interactions minimizing the study-visits to absolutely essential needs. All changes to the research protocols still need to be reviewed and approved by the IRB except for changes necessary to eliminate immediate apparent hazards including those based on the risk of exposure to COVID-19. Changes implemented to eliminate immediate apparent hazards should be promptly reported to the appropriate IRB.

The following guidelines should be strictly followed with immediate effect:

- Access to research laboratories should be limited to only essential personnel. If there are any individual necessary to be in the lab, social distancing protocols must be fully observed. Researchers who can work remotely must do so to continue research work to the extent possible.
- PI's should immediately identify essential research experiments that are at a critical phase, meaning that abandoning them would cause a major or irreversible loss in project viability. This high priority work should be a very limited set of the current laboratory bench-based experimentation.
- PI's should also identify experiments that can be ramped down, curtailed or delayed, and accomplish that process immediately.
- No new lines of research or experiments should be initiated at this time.
- Disinfection of common laboratory areas and touch points (e.g., doorknobs, sink handles, freezer doors, telephones) with 70% ethanol should occur at least twice daily.
- **Directors of research centers, laboratories and resources must develop appropriate plans to shut down equipment following due processes in case of university closure due to the severity of the COVID-19 outbreak. All PIs must also develop plans for maintaining laboratory viability** (e.g. liquid nitrogen tank filling, animal support, maintaining shared computational equipment). Notify your departmental administrator as soon as possible about any issues related to laboratory facilities.
- External visitors should not be allowed in labs at this time.
- Make sure you have access to contact information for your students, postdocs, and staff, and review contingency plans and emergency procedures within your group.

The following federal and agency guidelines should be reviewed to prepare plans to manage ongoing research grant activities.

Council on Governmental Relations

- COGR FAQs on COVID-19's Impact on Federal Awards -Version 1 (March 12)
- Institutional and Agency Responses to COVID-19 and Additional Resources (March 10)

Office of Management and Budget

- Office of Management and Budget Memorandum M-20-11 (March 9)

Sponsor – Agency Guidance

Department of Energy (3/12/20)

- Department of Energy Letter Addressing Coronavirus (COVID-19) (March 12)

National Institutes of Health (3/12/20)

- Flexibilities Available to Applicants and Recipients of Federal Financial Assistance Affected by COVID-19
- FAQs on COVID-19 Flexibilities for Applicants and Recipients
- NIH LATE APPLICATION POLICY Due to Public Health Emergency for United States for 2019 Novel Coronavirus (COVID-19)
- General Frequently Asked Questions (FAQs) - Proposal Submission and Award Management Related to COVID-19
- NIH Guidance on Travel and Meetings Hosted by NIH
- NIH Extramural Response to Natural Disasters and Other Emergencies

National Science Foundation (3/12/20):

- Coronavirus Information
- Frequently Asked Questions (FAQs) About the Coronavirus Disease 2019 (COVID-19) for National Science Foundation (NSF) Proposers and Awardees
- Dear Colleague Letter: Provisioning Advanced Cyberinfrastructure to Further Research on the Coronavirus Disease 2019 (COVID-19)
- NSF Guidance for Major Facilities and Contracts Regarding COVID-19

National Aeronautics and Space Administration (3/10/20)

- Assistant Administrator for Procurement Message on Coronavirus

Research Administration and Compliance

The Office of Research will continue to provide assistance on proposal submissions, pre-award and post-award grant management, research compliance and operational protocols to the best of our abilities. It is expected that Streamlyne will remain operational for proposal submissions and the following email addresses will be monitored regularly:

- Pre-Award inquiries: srard@njit.edu
- Post-Award financial management: gca@njit.edu
- Institutional Review Board: irb@njit.edu
- Institutional Biosafety Committee: ibc@njit.edu

All other research-related inquiries during an emergency should be submitted via https://research.njit.edu/inquiry

Updates and university wide resources in response to COVID-19 outbreaks are posted on the NJIT website https://www.njit.edu/coronavirus

If you have any questions related to research, please contact the Office of Research.

Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: **Program: Quantum Algorithm Challenge; NSF Convergence Accelerator Pilot Phase II; ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE);** Gen-4 Engineering Research Centers (ERC); Future Manufacturing (FM); Engineering Research Visioning Alliance (ERVA); Navigating the New Arctic Community Office (NNA-CO); Signals in the Soil; Human-Environment and Geographical Sciences Program (HEGS)
NIH: NICHD Resource Program Grants in Bioinformatics (P41); Maximizing Investigators' Research Award (MIRA) for Early Stage Investigators (R35); High-End Instrumentation (HEI) Grant Program (S10); Shared Instrumentation Grant (SIG) Program (S10); Optimizing Natural Systems for Remediation: Utilizing Innovative Materials Science Approaches to Enhance Bioremediation (R01); Collaborative Program Grant for Multidisciplinary Teams (RM1); IDeA Networks of Biomedical Research Excellence (INBRE) (P20); Environmental Health Sciences Core Centers (EHSCC) (P30)
Department of Defense/US Army/DARPA/ONR: **Microsystems Technology Office (MTO); Atmosphere as a Sensor (AtmoSense);** FY 2021 Multidisciplinary Research Program of the University Research Initiative (MURI); FY 2021 Defense University Research Instrumentation Program (DURIP); Quantum Information Sciences; NRL Long Range BAA for Basic and Applied Research; C4ISR, Information Operations, Cyberspace Operations and Information Technology System Research, Air Superiority Technology Broad Agency Announcement; DSO Broad Agency Announcement
Department of Transportation: FY 2020 National Infrastructure Investments
Department of Agriculture: Scientific and Cooperative Research Program; Biotechnology Risk Assessment Grants Program; Agriculture and Food Research Initiative - Foundational and Applied Science; REAP-Renewable Energy Systems and Energy Efficiency Improvements
Department of Labor: Apprenticeships: Closing the Skills Gap
EPA: Source Reduction Assistance Grant Program; National Environmental Education and Training Program; Community-Scale Air Toxics Ambient Monitoring
Department of Energy: **Measurement Innovations for Fusion Energy and Plasmas; Opportunities in Frontier Plasma Science;** Scientific Discovery through Advanced Computing: Scientific Machine Learning and Artificial Intelligence for Fusion Energy Sciences
NASA: ROSES 2020: Heliophysics Supporting Research; Astrophysics Data Analysis; HELIOPHYSICS - Early Career Investigator Program; Astrophysics Research and Analysis; Early Career Faculty; ROSES 2019: Sustainable Land Imaging-Technology
National Endowment of Humanities: Research and Development; Advanced Topics in the Digital Humanities; Fellowships
Michael J Fox Foundation: Parkinson's Research

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: Microwave-assisted Reactive and Antifouling Membrane Filtration for Water Purification
Funding Agency: U.S. Department of Interior
Duration: 02/04/20-02/15/21

PI: Wen Zhang (PI)
Department: Civil and Environmental Engineering
Grant/Contract Project Title: Electromagnetic Induction Interfacial Heating for High-Efficiency Membrane Distillation
Funding Agency: U.S. Department of Interior
Duration: 02/04/20-02/15/21

PI: Xiaoyang Xu (PI)
Department: Chemical and Material Engineering
Grant/Contract Project Title: Developing Functional Ferritin Nanocages for Blood Brain Barrier Traversing and Cellular Delivery
Funding Agency: NSF
Duration: 05/01/20-04/30/23

PI: Xiaoyang Xu (PI)
Department: Chemical and Material Engineering
Grant/Contract Project Title: Development of a New Long-Acting Local Anesthetics and its Application in Chronic Pain
Funding Agency: NIH-NJACTS
Duration: 01/28/20-01/27/21

PI: Dantong Wu (PI) and Xinyue Ye (Co-PI)
Department: MT School of Management and Informatics
Grant/Contract Project Title: Apply Natural Language Processing and Deep Learning to EMR Management, Preprocessing and Decision Making
Funding Agency: NIH-NJACTS
Duration: 01/09/20-01/08/21

PI: Kamalesh Sirkar (PI)
Department: Chemical and Material Engineering
Grant/Contract Project Title: Novel Membrane-Based Fabrics and Materials for Chemical and Biological Protection
Funding Agency: U.S. DoD (Defense Threat Reduction Agency)
Duration: 04/17/16-04/16/21

PI: Xin Di (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: Towards Development of Stable Multimodal Neuroimaging Based Markers of AD Progression
Funding Agency: NIH-NJACTS
Duration: 12/02/19-12/01/20

PI: Michel Boufadel (PI)
Department: Center for Natural Resources
Grant/Contract Project Title: Bridge Resource Program
Funding Agency: NJ DOT
Duration: 01/01/20-12/31/20

In the News…

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

$8.3 Billion Corona Virus Package Reserves Large Share for R&D: The supplemental appropriation quickly passed by Congress and signed into law by President Trump calls for more than $3 billion for research and development of "of vaccines, therapeutics, and diagnostics to prevent or treat the effects of coronavirus," according to a House summary. Here's a breakdown of where the money's going:

- The bill includes more than $3 billion for research and development of vaccines, as well as more than $800 million for research for treatments.
- More than $2 billion is slated for the Centers for Disease Control and Prevention, and $61 million to the U.S. Food and Drug Administration.
- The U.S. Agency for International Development would receive more than $1 billion.
- More than $1 billion will go to the state and local public heath efforts including community health centers and state and local governments.
- It also authorizes roughly $500 million to allow for Medicare providers to administer telehealth services.

The bill summary is posted on the website https://www.congress.gov/bill/116th-congress/house-bill/6074

New Gen-4 ERCs Expected: The National Science Foundation anticipates spending up to $130 million for up to five new Engineering Research Centers over the first five years (they usually last 10 years). Issuing its second solicitation under Generation 4 of the venerable program, NSF says: "The Gen-4 ERCs will continue to focus on advancing engineered systems through inclusive cross-disciplinary and cross-sector partnerships, while placing emphasis on basic research with high-risk/high-payoff ideas that will lead to societal impact through convergent approaches, engaging stakeholder communities, and strengthening team formation." Awards are expected in the summer of 2022. The RFP brief is included in the Grant Opportunity section below.

'QUANTUM ALGORITHM CHALLENGE': That's the heading atop an NSF Dear Colleague letter inviting 3-page Research Concept Outlines (RCOs) "describing research ideas that may lead to EAGER (Early-Concept Grants for Exploratory Research) (EAGER)4 or Research Advanced by Interdisciplinary Science and Engineering (RAISE)5 proposals focused on: QSA: quantum computing simulation algorithms for quantum many-body systems; QIA: quantum information algorithms, which aims to expand the set of known quantum-computing algorithms with application in computer science, mathematics, and statistics; and QCH: quantum computing horizons which explores potentially transformative new paradigms for quantum computation. More information is posted on the website https://www.nsf.gov/pubs/2020/nsf20056/nsf20056.jsp?WT.mc_id=USNSF_25&WT.mc_ev=click
And also included in the Grant Opportunity section below.

NSF Action on Research Security: The National Science Foundation has tapped Rebecca Spyke Keiser as chief of research security strategy and policy "as part of its continuing effort to ensure the security of federally funded research while maintaining an open international collaboration." Creation of the new position comes in response to recommendations in a study by the JASON advisory group, which "was clear that the U.S. science community faces threats to its longstanding position of openness and transparency of research and its results," Director France Córdova said. NSF is seeking to mitigate risks to the research ecosystem thought the following actions:

- In March 2020, the agency appointed Rebecca Spyke Keiser to the newly created position of chief of research security strategy and policy (CoRSSP). The CoRRSP is tasked with advising the NSF director on research security strategy, leading NSF's efforts to develop and implement research security strategy, and managing coordination with other federal agencies and the White House.
- At the beginning of 2020, NSF will issue a clarification to its longstanding policy requiring researchers seeking NSF funding to disclose their other sources of support. NSF has long required researchers to disclose all other sources of support, both foreign and domestic. The clarification to NSF's guidance will ensure proposers and awardees understand these requirements.
- In 2019, NSF issued a policy stating that members of its workforce may not participate in foreign government talent recruitment programs.
- To ensure expert input into issues related to open science and the security of science, in 2019 NSF commissioned and received a study from the independent JASON advisory group assessing risks to fundamental research. The study includes recommendations for NSF and grantee institutions to maintain balance between openness and security of science. In March 2020, NSF published responses agreeing with the report's recommendations and noting where the agency has already taken action or plans to do so.

A summary of NSF initiatives is posted on the website
https://nsf.gov/news/special_reports/jasonsecurity/

NSF Future Manufacturing Initiative: The National Science Foundation is offering various types of awards, one of them up to $2 million per year for five years, for "fundamental research and education of a future workforce that will enable . . . manufacturing that either does not exist today or exists only at such small scales that it is not viable. Future Manufacturing will require the design and deployment of diverse new technologies for synthesis and sensing, and new algorithms for manufacturing new materials, chemicals, devices, components and systems. It will require new advances in artificial intelligence and machine learning, new cyber infrastructure, new approaches for mathematical and computational modeling, new dynamics and control methodologies, new ways to integrate systems biology, synthetic biology and bioprocessing, and new ways to influence the economy, workforce, human behavior, and society." The Future Manufacturing RFP is included in the Grant Opportunities section below and also posted on the website https://www.nsf.gov/pubs/2020/nsf20552/nsf20552.htm?

Webinar and Events

Event: NSF Funding for Startups and Small Businesses
Sponsor: NSF
When: March 16, 2020 2:00 PM – 3.00 PM
Other Dates:
March 16, 2020 2:00 PM – 3.00 PM: Biological Technologies
March 19, 2020 2:00 PM – 3.00 PM: Cybersecurity
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=300040&org=NSF
Brief Description: Did you know that the National Science Foundation (NSF) offers funding to help turn discoveries into products or services?
Join an upcoming webinar if you are interested in translating your technology, testing if it has market potential or just learning about NSF funding opportunities.
In each webinar, a Small Business Innovation Research (SBIR) program director will discuss one of the many specific scientific topics funded through the NSF Division of Industrial Innovation and Partnerships.

Look for future webinars and read more about the full range of technology topics at America's Seed Fund powered by NSF.
To Join the Webinar: Visit the above URL.

Event: Webinar: Training Tomorrow's Engineers to Build Resilience and Combat Climate Change
Sponsor: ASEE
When: March 10, 2020; 3:00 PM – 4.00 PM
Website: https://www.asee.org/education-careers/continuing-education/webinars
Brief Description: Climate change is a global issue that stands to seriously impact public infrastructure and the Earth's water, energy, and coastal development resources. Engineers can design solutions to mitigate climate change and adapt to its realities in the future. In this Earth Day webinar, inspired by the November 2019 *Prism* article "People Get Ready" learn how two NSF-funded projects are training tomorrow's engineers to build resilience through interdisciplinary initiatives.
Carla Lopez del Puerto (Universidad de Puerto Rico – Mayaguez) will share how RISE-UP, conceived in the aftermath of hurricane Maria, developed an interdisciplinary curriculum among three UPR campuses to prepare undergraduate students to design infrastructure that can withstand the impact of natural events. Pamela McLeod (Stanford University) will share how multi-institution ERC ReNUWIt works to expand, diversify, and prepare the next generation of urban water experts through programs that engage K-12, undergraduate, and graduate students.
To Join the Webinar: Visit the above URL.

Event: NSF Distinguished Lecture Series in Mathematical and Physical Sciences for 2019-20
Sponsor: NSF
When: Various; Please see below.
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=299152&org=NSF
Brief Description: These lectures will be held at the National Science Foundation, 2415 Eisenhower Ave., Alexandria, VA 22314. Advance sign-up requests are required for preparation of visitor passes by emailing the contact below. Guidelines for visiting NSF are at https://www.nsf.gov/about/visit/
March 23, 2020 2:00 PM to March 23, 2020 3:00 PM
May 4, 2020 2:00 PM to May 4, 2020 3:00 PM
June 11, 2020 2:00 PM to June 11, 2020 3:00 PM
To Join the Webinar: Please register at the above URL.

Grant Opportunities

National Science Foundation

Grant Program: Quantum Algorithm Challenge
Agency: National Science Foundation NSF 20-056 Dear Colleague Letter
RFP Website:
https://www.nsf.gov/pubs/2020/nsf20056/nsf20056.jsp?WT.mc_id=USNSF_25&WT.mc_ev=click
Brief Description: As the age of Moore's law draws to a close, there has been increased interest in new types of computational platforms. Quantum computing in particular has recently seen rapid advances in terms of hardware capabilities, algorithm development, and the availability of software. One of the earliest and most compelling applications for quantum computers, as envisioned by Richard Feynman, is the idea of simulating quantum systems with many degrees of freedom, such as molecules and materials, which is

intractable on ordinary classical computers. This and more recently conceived applications of quantum computation related to encryption, search, approximation, optimization, and machine learning promise to have enormous impact in science and technology. With this Dear Colleague Letter (DCL), the National Science Foundation (NSF) aims to challenge the fundamental research community to develop innovative quantum algorithms for many- body systems, develop novel algorithms that expand the applications of quantum computation, or propose new quantum-computing paradigms.

Because quantum computing is very different from classical computing, the best way to obtain a quantum advantage is often quite subtle. It takes creativity and innovation to develop the algorithms required to solve practical problems via quantum computation. Although much progress has been made, there are many open questions and obstacles to overcome before the power of quantum computing can be fully harnessed for application in chemistry, physics, materials science, mathematics, statistics, and computer science.

The National Science Foundation has recently sponsored several workshops that are relevant to this DCL: Mathematical Sciences Challenges in Quantum Information[1], Enabling the Quantum Leap: Quantum Algorithms for Quantum Chemistry and Materials[2], and Quantum Simulators: Architectures and Opportunities[3]. These workshops are aligned with the NSF Quantum Leap Big Idea, which aims to exploit quantum mechanical concepts such as superposition and entanglement to develop next-generation technologies for sensing, computing, modeling, and communication.

Stimulated by the recommendations of the workshops, a working group with membership from the Divisions of Chemistry, Materials Research, Physics, and Mathematical Sciences within the Directorate for Mathematical and Physical Sciences; and the Division of Computing and Communication Foundations and Office of Advanced Cyberinfrastructure within the Directorate for Computer and Information Science and Engineering invites the submission of Research Concept Outlines (RCOs) (maximum length three pages) describing research ideas that may lead to EAGER (Early-Concept Grants for Exploratory Research) (EAGER)[4] or Research Advanced by Interdisciplinary Science and Engineering (RAISE)[5] proposals focused on topics in the following three tracks:

- QSA: quantum computing simulation algorithms for quantum many-body systems.
- QIA: quantum information algorithms, which aims to expand the set of known quantum-computing algorithms with application in computer science, mathematics, and statistics; and
- QCH: quantum computing horizons which explores potentially transformative new paradigms for quantum computation.

RCO Submission: A successful Research Concept Outline (RCO) will describe the following:

- A challenging scientific problem focus and how the proposed work has the potential to significantly advance our ability to address it.
- Associated algorithmic or computational challenge(s) being addressed and why current approaches are inadequate. If there are no current approaches, the barriers or challenges that preclude or make them intractable or impractical should be clearly discussed.
- For each track:
    - QSA: Algorithmic advance(s) being proposed and why the proposed approach offers potential advantages over existing quantum algorithms (if any exist).
    - QIA: How the proposed approach complements or improves upon the existing algorithms and schemes.
    - QCH: The proposed new approach to quantum computing discussed in the context of a challenging existing problem. The RCO should outline what the proposed new way of quantum computing brings over existing paradigms. Will this approach be potentially applicable to other challenging problems?
- The novelty of the proposed ideas.
- Specific plans for evaluating or benchmarking the developments.

- For each track:
    - QSA: The type of hardware being targeted and plans for running on actual machines (or realistic simulators).
    - QIA: The expected speedup (quantum advantage) of the proposed approach, any anticipated improvement in hardware requirements (numbers of qubits/gates), or (for post-quantum cryptographic schemes) the reasons for anticipated resistance to quantum attack.
    - QCH: Prospects for realizing a proof of principle. This track lends itself to interdisciplinary collaboration, if a proof-of-principle is part of the project (RAISE).

The title of the RCO should clearly indicate the funding mode sought through the prefixes EAGER: or RAISE:, followed by QSA: or QIA: or QCH: to label the track. The RCO should also list all the Principal Investigators and their organizational affiliations, as well as anticipated senior personnel. This information should form the first paragraph of the RCO and begin with the first word "Investigators:". Ideas for RAISE proposals should emphasize the interdisciplinary nature of the research and clearly identify the role of each member of the team. RCOs are limited in length to three pages maximum.
Submission Deadline: The RCOs should be sent to QLQA@nsf.gov by April 15, 2020. The Quantum Algorithms (QLQA) committee will review them and invite submissions by May 1, 2020. Invited EAGER and RAISE proposals will be due on June 15, 2020. The email invitation from an NSF Program Officer serves as documentation and must be uploaded in the Supplementary Documentation section of the proposal.

Grant Program: NSF Convergence Accelerator Pilot Phase II
Agency: National Science Foundation NSF 20-555
RFP Website: https://www.nsf.gov/pubs/2020/nsf20555/nsf20555.htm
Brief Description: The goals of NSF's convergence accelerator effort are to support and accelerate use-inspired convergence research in areas of national importance within particular topics (tracks).
Dear Colleague Letter (DCL) NSF 19-050 invited proposals for the NSF Convergence Accelerator Pilot (NSF C-Accel). Track A1 of this pilot, Open Knowledge Network, relates to the Harnessing the Data Revolution (HDR) Big Idea. Track B1, AI and Future Jobs, and track B2, National Talent Ecosystem, relate to the Future of Work at the Human-Technology Frontier (FW-HTF) Big Idea.
This solicitation is limited to grantees who received a Phase I Award under Dear Colleague Letter (DCL) NSF 19-050 and wish to advance to Phase II.
The NSF Convergence Accelerator supports fundamental research that leads to rapid advances that can deliver useful results to society. Teams are expected to include personnel with the appropriate mix of disciplinary expertise needed to execute their proposed Phase II research and development plan. The team should also include appropriate stakeholders (e.g., industry, Institutions of Higher Education (IHEs), non-profits, government entities, and others), each with a specific role(s) in facilitating the transition of research outputs into practical uses.
Awards: Cooperative Agreement; Anticipated Funding Amount: $30,000,000
Letters of Intent: Not Required
Proposal Submission Deadline: May 11, 2021
Contacts: Lara A. Campbell, telephone: (703) 292-7049, email: lcampbel@nsf.gov
- Michael Pozmantier, telephone: (703) 292-4475, email: mpozmant@nsf.gov

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Grant Program: ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE)
Agency: National Science Foundation NSF 20-554

RFP Website: https://www.nsf.gov/pubs/2020/nsf20554/nsf20554.htm
Brief Description: The NSF ADVANCE program contributes to the National Science Foundation's goal of a more diverse and capable science and engineering workforce.[1] In this solicitation, the NSF ADVANCE program seeks to build on prior NSF ADVANCE work and other research and literature concerning gender, racial, and ethnic equity. The NSF ADVANCE program goal is to broaden the implementation of evidence-based systemic change strategies that promote equity for STEM[2] faculty in academic workplaces and the academic profession. The NSF ADVANCE program provides grants to enhance the systemic factors that support equity and inclusion and to mitigate the systemic factors that create inequities in the academic profession and workplaces. Systemic (or organizational) inequities may exist in areas such as policy and practice as well as in organizational culture and climate. For example, practices in academic departments that result in the inequitable allocation of service or teaching assignments may impede research productivity, delay advancement, and create a culture of differential treatment and rewards. Similarly, policies and procedures that do not mitigate implicit bias in hiring, tenure, and promotion decisions could lead to women and racial and ethnic minorities being evaluated less favorably, perpetuating historical under-participation in STEM academic careers and contributing to an academic climate that is not inclusive.
All NSF ADVANCE proposals are expected to use intersectional approaches in the design of systemic change strategies in recognition that gender, race and ethnicity do not exist in isolation from each other and from other categories of social identity. The solicitation includes four funding tracks: ***Institutional Transformation (IT)***, ***Adaptation***, ***Partnership,*** and ***Catalyst***, in support of the NSF ADVANCE program goal to broaden the implementation of systemic strategies that promote equity for STEM faculty in academic workplaces and the academic profession.

- The ***Institutional Transformation (IT)*** track is designed to support the development, implementation, and evaluation of *innovative* systemic change strategies that promote gender equity for STEM faculty within an institution of higher education.
- The ***Adaptation*** track is designed to support the work to adapt, implement, and evaluate evidence-based systemic change strategies that have been shown to promote gender equity for STEM faculty in academic workplaces and the academic profession. ***Adaptation*** projects can either: 1) support the adaptation of evidence-based systemic change strategies to promote equity for STEM faculty within an institution of higher education; or 2) facilitate national or regional STEM disciplinary transformation by adapting evidence-based systemic change strategies to non-profit, non-academic organizations.
- The ***Partnership*** track is designed to support the work to facilitate the broader adaptation of gender equity and systemic change strategies. ***Partnership*** projects are expected to result in national or regional transformation in STEM academic workplaces and the academic profession and demonstrate significant reach. ***Partnership*** projects can focus on the transformation of institutions and organizations and/or the transformation within one or more STEM disciplines.
- The ***Catalyst*** track is designed to broaden the types of IHEs that are able to undertake data collection and institutional self-assessment work to identify systemic gender inequities impacting their STEM faculty so that these can be addressed by the institution.

Awards: Standard Grant or Continuing Grant or Cooperative Agreement; **Anticipated Funding Amount:** $29,000,000
Letters of Intent: Submission of Letters of Intent is required by August 03, 2020
Preliminary Proposals: April 22, 2021
Proposal Submission Deadline:

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

November 04, 2020
First Wednesday in November, Annually Thereafter

Partnership and Adaptation full proposal deadline - if you submitted a letter of intent then you can submit the full proposal. Work on the full proposal should have started well before the letter of intent deadline.

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

August 07, 2020
First Friday in August, Annually Thereafter

Catalyst proposals – Catalyst proposals are accepted before and after the target date. Please contact the program office before submitting a proposal to discuss timing for submission.

October 07, 2021
First Thursday in October, Annually Thereafter

Institutional Transformation proposals - only IHEs encouraged by NSF after review of an IT-Preliminary proposal should submit a full IT proposal – IT proposals are accepted before and after the target date.

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

- Erika T. Camacho, telephone: (703) 292-2834, email: ADVANCE@nsf.gov

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Grant Program: Gen-4 Engineering Research Centers (ERC)
Agency: National Science Foundation NSF 20-553
RFP Website: https://www.nsf.gov/pubs/2020/nsf20553/nsf20553.htm
Brief Description: The ERC program supports convergent research that will lead to strong societal impact. Each ERC has interacting foundational components that go beyond the research project, including engineering workforce development at all participant stages, a culture of diversity and inclusion where all participants gain mutual benefit, and value creation within an innovation ecosystem that will outlast the lifetime of the ERC. The logical reasoning that links the proposed activities to the identified goals for each ERC should be clear.

The ERC program is grounded by the four foundational components of the ERC: **Convergent Research, Engineering Workforce Development, Diversity and Culture of Inclusion, and the Innovation Ecosystem**

Awards: Cooperative Agreement; Anticipated Funding Amount: $26,000,000 to $130,000,000

Up to 5 depending on the quality of the proposals and the availability of funds. ERCs are generally funded for ten years, with an initial award for the first five years and second award based on performance and review of a renewal proposal.

Letters of Intent: Submission of Letters of Intent is required by September 02, 2020
Preliminary Proposals: October 02, 2020
Proposal Submission Deadline: May 07, 2021
Contacts: Sarit B. Bhaduri, telephone: (703) 292-2975, email: sbhaduri@nsf.gov

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

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Grant Program: Future Manufacturing (FM)
Agency: National Science Foundation NSF 20-552
RFP Website: https://www.nsf.gov/pubs/2020/nsf20552/nsf20552.htm
Brief Description: The *next* generation of technological competition in manufacturing will be dictated by inventions of new materials, chemicals, devices, systems, processes, machines, design and work methods, social structures and business practices. Fundamental research will be required in robotics, artificial intelligence, biotechnology, materials science, sustainability, education and public policy, and workforce development to take the lead in this global competition. The research supported under this solicitation will enhance U.S. leadership in manufacturing far into the future by providing new capabilities

for established companies and entrepreneurs, improving our health and quality of life, and reducing the impact of manufacturing industries on the environment.

The goal of this solicitation is to support fundamental research and education of a future workforce that will enable Future Manufacturing: manufacturing that either does not exist today or exists only at such small scales that it is not viable. Future Manufacturing will require the design and deployment of diverse new technologies for synthesis and sensing, and new algorithms for manufacturing new materials, chemicals, devices, components and systems. It will require new advances in artificial intelligence and machine learning, new cyber infrastructure, new approaches for mathematical and computational modeling, new dynamics and control methodologies, new ways to integrate systems biology, synthetic biology and bioprocessing, and new ways to influence the economy, workforce, human behavior, and society. Among this array of technologies and potential research subjects, three thrust areas have been identified for support in FY 2020 under this solicitation:

Future Cyber Manufacturing Research,
Future Eco Manufacturing Research, and **Future Biomanufacturing Research**.

Awards: Standard Grant or Continuing Grant; Anticipated Funding Amount: $40,000,000

Future Manufacturing Research Grants (FMRG) - Two types of awards will be supported in FY 2020:
Type I: $500,000 to $750,000 per year for up to five years,
Type II: $750,000 to $2,000,000 per year for up to five years;

Future Manufacturing Seed Grants (FMSG) - Awards in this track will provide support for up to two years at a level not to exceed $250,000 per year; and

Future Manufacturing Networks (FMNet) - Awards in this track will provide up to five years of support at a total amount of $500,000.

Letter of Intent: Required by April 10, 2020

Proposal Submission Deadline: June 05, 2020

Contacts: William Olbricht, Program Director, (ENG/CBET), (703) 292-4842, email: wolbrich@nsf.gov

- Andrew B. Wells, Program Director, (ENG/CMMI), telephone: (703) 292-7225, email: awells@nsf.gov

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Grant Program: Engineering Research Visioning Alliance (ERVA): Future Research Directions for the Engineering Research Community

Agency: National Science Foundation NSF 20-551

RFP Website: https://www.nsf.gov/pubs/2020/nsf20551/nsf20551.htm

Brief Description: The National Science Foundation Directorate for Engineering (NSF/ENG) invites the engineering research community to establish an organization that will serve to identify and develop bold and societally impactful new engineering research directions and thereby catalyze the engineering research community's pursuit of innovative, high-impact research. Specifically, NSF/ENG calls on the engineering research community to establish an Engineering Research Visioning Alliance (ERVA) that ENG will support to facilitate the articulation of compelling research visions that align with national and global challenges. This organization will be charged with obtaining and integrating input from all stakeholders with interest in engineering research, including academia, industry, societies, government agencies and the public. A reciprocal goal of the organization will be to communicate coordinated information on nascent opportunities and priorities in engineering research to these stakeholders. It is anticipated that through its activities the ERVA will strengthen connectivity across these diverse stakeholders, and increase coordination among engineering disciplinary communities.

The ERVA should have membership/representation of academic, industrial and other stakeholders, and should be inclusive of all engineering disciplines. Through its proposed activities, the

ERVA should provide the engineering community with a process for identifying future research challenges and enable the engineering research community to speak with a unified voice.
FURTHER INFORMATION: An informational webinar will be presented on Wednesday, March 25th at 1:00pm Eastern to discuss the ERVA solicitation and answer questions. Details on how to join this webinar will be posted on the NSF/Engineering website (https://www.nsf.gov/dir/index.jsp?org=ENG).
Awards: Cooperative Agreement; Anticipated Funding Amount: $5,000,000 to $8,000,000
Letter of Intent: Required by July 08, 2020
Limit on Number of Proposals per Organization: 1
Proposal Submission Deadline: June 10, 2020
Contacts: Louise R. Howe, Program Director, ENG/EFMA, (703) 292-2548, email: lhowe@nsf.gov

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Grant Program: Navigating the New Arctic Community Office (NNA-CO)
Agency: National Science Foundation NSF 20-549
RFP Website: https://www.nsf.gov/pubs/2020/nsf20549/nsf20549.htm
Brief Description: NSF invites proposals to establish a Navigating the New Arctic Community Office (NNA-CO). Launched in 2016, NNA has been building a growing portfolio of research and planning grants at the intersection of the built, social, and natural environments to improve understanding of Arctic change and its local and global effects. Each NNA-funded project is responsible for its own performance, including its core research and broader impacts. However, an NNA community office is required to coordinate the activities of funded NNA projects; engage new PIs; and promote research, education, and outreach activities. The NNA-CO will also provide centralized representation of ongoing NNA activities to the broader scientific community and the public. The lead PI of the successful NNA-CO proposal will serve as the Office Director and will work with the research community to develop and implement appropriate communication networks and support for investigators, stakeholders, and research teams pursuing NNA research. NNA research is inherently convergent, seeking new knowledge at the intersection of the natural, built, and social environments. NNA research also inherently involves diverse stakeholders, from local to international. The NNA-CO will need to demonstrate the ability to work with these types of research teams and audiences.
Awards: Cooperative Agreement; Anticipated Funding Amount: $2,500,000 to $5,000,000
Letter of Intent: Not Required
Limit on Number of Proposals per Organization: 1
Proposal Submission Deadline: June 10, 2020
Contacts: NNA Working Group, telephone: (703) 292-8030, email: nna@nsf.gov

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Grant Program: Signals in the Soil
Agency: National Science Foundation NSF 20-548
RFP Website: https://www.nsf.gov/pubs/2020/nsf20548/nsf20548.htm
Brief Description: The National Science Foundation (NSF) Directorates for Engineering (ENG) and Geosciences (GEO), the Divisions of Integrative Organismal Systems (IOS) and Environmental Biology (DEB), in the Directorate for Biological Sciences (BIO), the Division of Computer and Network Systems in the Directorate Computer and Information Science and Engineering (CISE/CNS), and the Division of Chemistry (CHE) in the Directorate for Mathematical and Physical Sciences, in collaboration with the US Department of Agriculture National Institute of Food and Agriculture (USDA NIFA) encourage convergent research that transforms existing capabilities in understanding dynamic soil processes, including soil formation, through advances in sensor systems and modeling. The Signals in the Soil (SitS) program fosters collaboration among the two partner agencies and the researchers they support by

combining resources and funding for the most innovative and high-impact projects that address their respective missions. To make transformative advances in our understanding of soils, multiple disciplines must converge to produce environmentally-benign novel sensing systems with multiple modalities that can adapt to different environments and collect and transmit data for a wide range of biological, chemical, and physical parameters. Effective integration of sensor data will be key for achieving a better understanding of signaling interactions among plants, animals, microbes, the soil matrix, and aqueous and gaseous components. New sensor networks have the potential to inform models in novel ways, to radically change how data is obtained from various natural and managed (both urban and rural) ecosystems, and to better inform the communities that directly rely on soils for sustenance and livelihood.
Each proposal must address **at least one** of the following five priorities. Systems approaches and attention to NSF's cross-cutting themes described below the 5 priorities are particularly encouraged.

1. **Development of novel sensors**
2. **Biological/ chemical/ physical interactions**
3. **Cross-disciplinary modeling**
4. **Data transmission and analysis**
5. **Cyber-infrastructure**

Awards: Standard Grant or Continuing Grant; Anticipated Funding Amount: $8,000,000 to $13,000,000
Letter of Intent: Required
Proposal Submission Deadline: May 20, 2020
Contacts: Brandi Schottel, Division of Chemical, Bioengineering, Environmental, and Transport Systems, telephone: (703) 292-4798, email: SitSquestions@nsf.gov

- Richard J. Fragaszy, Division of Civil, Mechanical, and Manufacturing Innovation, telephone: (703) 292-7011, email: SitSquestions@nsf.gov
- Mohammod Ali, Division of Electrical, Communications, and Cyber Systems, telephone: (703) 292-4632, email: SitSquestions@nsf.gov

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Grant Program: Human-Environment and Geographical Sciences Program (HEGS)
Agency: National Science Foundation NSF 20-547
RFP Website: https://www.nsf.gov/pubs/2020/nsf20547/nsf20547.htm
Brief Description: The objective of the Human-Environment and Geographical Sciences (HEGS) Program is to support basic scientific research about the nature, causes, and/or consequences of the spatial distribution of human activity and/or environmental processes across a range of scales. Projects about a broad range of topics may be appropriate for support if they enhance fundamental geographical knowledge, concepts, theories, methods, and their application to societal problems and concerns. Recognizing the breadth of the field's contributions to science, the HEGS Program welcomes proposals for empirically grounded, theoretically engaged, and methodologically sophisticated geographical research. National Science Foundation's mandate is to support basic scientific research. Support is provided for projects that are most effective in grounding research in relevant theoretical frameworks relevant to HEGS, that focus on questions that emanate from the theoretical discussions, and that use scientific methods to answer those questions. HEGS supported projects are expected to yield results that will enhance, expand, and transform fundamental geographical theory and methods, and that will have positive broader impacts that benefit society.
Awards: Standard Grant or Continuing Grant; Anticipated Funding Amount: $5,000,000 to $6,000,000
Letter of Intent: Not Required
Proposal Submission Deadline:
August 18, 2020
Third Tuesday in August, Annually Thereafter

January 19, 2021
Third Tuesday in January, Annually Thereafter
Contacts: Jacqueline M. Vadjunec, Program Director, telephone: (703) 292-7064, email: jmvadjun@nsf.gov

- Scott M. Freundschuh, Program Director, telephone: (703) 292-7076, email: sfreunds@nsf.gov

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National Institutes of Health

Grant Program: NICHD Resource Program Grants in Bioinformatics (P41 Clinical Trial Not Allowed
Agency: National Institutes of Health PAR-20-126
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-20-126.html
Brief Description: The emergence and rapid evolution of high-resolution sequencing and other omics technologies have generated unprecedented quantities of molecular-level data from the analyses of biological systems. This rapid progress has been particularly significant in the areas of genomics and proteomics. This exponential increase of information has been augmented by increased computing power to digitally record, store, and analyze large amounts of molecular data. However, for the ever-increasing quantities of information to be maximally useful to biomedical scientists requires the establishment and maintenance of database resources that enable the compilation, annotation, storage, and dissemination of available data in compliance with the FAIR Data principles (Findable, Accessible, Interoperable, and Reusable). Additionally, corresponding tools in bioinformatics for data analysis and entry, as well as technical support and user training are required to efficiently utilize these database resources.
Objectives
These Resource Program Grants in Bioinformatics are intended to support the continued availability, operation, improvement and maintenance of databases, digital information, or bioinformatics tools and/or resources, user training and services, and wide dissemination of these tools or resources.
To qualify for support, bioinformatics resources such as software and algorithms, or knowledge resources must be of demonstrable value toward advancing research utilizing animal model systems in the biomedical sciences, and must also be of particular importance to those seeking to understand the biological basis of human and animal development and the etiology of structural birth defects.
The resources must be sufficiently mature to have verifiable support and utility for users within the developmental biology research community; operate according to FAIR data principles and have a demonstrable national and international impact.
Examples of activities that Resource Program Grants in Bioinformatics are intended to support include but are not limited to:

- Efforts to curate and annotate unique collections of data, information or knowledge that support learning and research utilizing animal model systems;
- Information and knowledge processing, including information extraction, integration of data from heterogeneous sources, event detection, and feature recognition within these data sets;
- Tools for analyzing large datasets, including genomic and proteomic data, data regarding gene and protein expression in relation to cellular, anatomical, and/or developmental coordinates;
- Data sets and tools for analysis of gene regulatory networks, protein-protein interaction networks, epigenetic regulatory mechanism, systems biological approaches, and other tools for understanding normal and abnormal biological function and/or development;

- Other unique data sets or information tools of demonstrable utility for biomedical research using animal models of developmental processes;
- Systems for knowledge representation, including vocabularies, ontologies, simulations and virtual reality, retrieval tools and intelligent agents for scientific information related to developmental processes.

Resource Program Grants in Bioinformatics are not intended to support:

- Research and development intended as proof of concept, to ascertain feasibility, or to underwrite the initial development of a tool or resource.
- Projects that utilize a tool or database being supported through these resource program grants. Such projects should seek funding through customary NIH research grant mechanisms.
- Tools and resources that duplicate activities of the National Library of Medicine or existing resources supported by other Institutes of the National Institutes of Health.

Applicants who wish to undertake biomedical informatics research, to develop and test novel information technologies, or to perform feasibility or proof-of-concept studies, should respond to other FOAs.
Awards: Requested direct costs cannot exceed $1,750,000 per year, are expected to range from $500,000 to no more than $1,750,000 per year and 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
The first standard application due date for this FOA is May 25, 2020.
All applications are due by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: Maximizing Investigators' Research Award (MIRA) for Early Stage Investigators (R35 - Clinical Trial Optional)
Agency: National Institutes of Health PAR-20-117
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-20-117.html
Brief Description: Supporting fundamental research by funding individual projects has a number of consequences that could reduce the efficiency and effectiveness of the biomedical research enterprise in the U.S. To address these issues and increase the efficiency and efficacy of grant funding, the NIGMS Maximizing Investigators' Research Award (MIRA) is a single grant to provide support for the NIGMS-relevant program of research in an investigator's laboratory. For this FOA, eligibility to apply is limited to PD/PIs who are NIH-defined Early Stage Investigators (ESIs) at the time of submission and the "program of research" is defined as a collection of projects in the PD/PI's lab that are within the mission of NIGMS. Applicants who receive R01, SC1, DP1, DP2, or any other type of disqualifying award prior to issuance of the ESI-MIRA become ineligible to receive the award.
In comparison to R01 funding of NIGMS ESI investigators, Maximizing Investigators' Research Award for Early Stage Investigators (ESI MIRA) benefits include:

- No requirement or expectation for preliminary data, which will
  - Enable investigators to apply earlier in their independent research career, allowing them to secure grant funding that will launch and sustain a successful research career, and
  - Enhance investigators' ability to move into research areas that are distinct from those of their postdoctoral mentors, which could increases chances for new scientific discoveries;
- Increased stability of funding for NIGMS-supported ESIs, improved success rates, and more graduated, rather than all-or-none, funding decisions for MIRA renewals;

- Larger award amount than the current average NIGMS R01 award to ESIs, while the project period will be similar;
- More flexibility to pursue new ideas and opportunities as they arise during the course of research because the award is not tied to specific aims;
- A reduction in administrative burden associated with managing multiple grants; and
- A reduction in required application writing.

In developing MIRA, NIGMS is committed to maintaining support for at least the current total number of NIGMS-funded early stage investigators and their associated programs of research. The Institute will also work to ensure that it maintains a broad and diverse research portfolio in terms of scientific areas, approaches, regions, institutions, and individuals. Such diversity will optimize returns on the Institute's investments by maximizing the ideas explored and the chances for important breakthroughs.
Awards: Applications may request up to $250,000 direct costs per year.
Letter of Intent: Not Required
Deadline: October 2, 2020; October 4, 2021; October 3, 2022
All applications are due by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: High-End Instrumentation (HEI) Grant Program (S10 Clinical Trial Not Allowed)
Agency: National Institutes of Health PAR-20-114
PAR-20-113 Shared instrumentation Grant (SIG) Program (Clinical Trial Not Allowed)
PAR-20-112 Shared Instrumentation for Animal Research (SIFAR) Grant Program (Clinical Trial Not Allowed)
RFP Website: https://grants.nih.gov/grants/guide/rfa-files/RFA-ES-20-004.html
Brief Description: The High-End Instrumentation (HEI) Grant program encourages applications from groups of NIH-supported investigators to purchase or upgrade a single item of high-end, specialized, commercially available instruments or integrated systems. The minimum award is $600,001. There is no maximum price limit for the instrument; however, the maximum award is $2,000,000. Types of instruments supported include, but are not limited to: X-ray diffractometers, mass spectrometers, nuclear magnetic resonance (NMR) spectrometers, DNA and protein sequencers, biosensors, electron and light microscopes, cell sorters, high throughput robotic screening systems, and biomedical imagers.
Awards: Applications will be accepted that request a single, commercially available instrument or integrated system. The minimum award is $600,001. There is no upper limit on the cost of the instrument, but the maximum award is $2,000,000. Since the cost of the various instruments will vary, it is anticipated that the size of the award will also vary. S10 awards do not allow indirect costs.
Letter of Intent: Not Required
Deadline: June 1, 2020
All applications are due by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: Shared Instrumentation Grant (SIG) Program (S10 Clinical Trial Not Allowed)
Agency: National Institutes of Health PAR-20-113
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-20-113.html

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

The Shared Instrument Grant (SIG) Program encourages applications from groups of NIH-supported investigators to purchase or upgrade a single item of high-priced, specialized, commercially available instruments or integrated systems. The minimum award is $50,000. There is no maximum price limit for the instrument; however, the maximum award is $600,000. Types of instruments supported include, but are not limited to: X-ray diffractometers, mass spectrometers, nuclear magnetic resonance spectrometers, DNA and protein sequencers, biosensors, electron and light microscopes, cell sorters, and biomedical imagers.

The SIG Program will not support requests for:

- An instrument with a base cost of less than $50,000;
- Multiple instruments bundled together;
- Purely instructional equipment;
- Instruments used for clinical (billable) care;
- Institutional administrative management systems, clinical management systems;
- Software, unless it is integrated in the operation of the instrument and/or necessary for generation of high-quality output experimental data from the instrument;
- Stand-alone workstations for data processing, software licenses, and duplicate software items;
- General purpose equipment (such as standard machine shop equipment), instruments to furnish a research facility (such as autoclaves, hoods, equipment to upgrade animal facilities), equipment for routine sustaining infrastructure (such as standard computer networks or data storage systems);
- Disposable devices, office furniture, and supplies;
- Alteration or renovation of space to house the instruments.

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

Letter of Intent: Not Required

Deadline: June 1, 2020

All applications are due by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).

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

Grant Program: Optimizing Natural Systems for Remediation: Utilizing Innovative Materials Science Approaches to Enhance Bioremediation (R01 Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-ES-20-004

RFP Website: https://grants.nih.gov/grants/guide/rfa-files/RFA-ES-20-004.html

Brief Description: The purpose of this FOA is to support innovative approaches to understand mechanisms of bioremediation. Bioremediation, for the purposes of this FOA, encompasses remediation

using bacteria, archaea, algae, fungi, and/or plants to degrade, extract, or stabilize contaminants as part of a natural or constructed system. Applicants should assemble teams of researchers with expertise in bioremediation and materials science to propose integrated approaches to reduce the burden of contaminants in the environment. Through a transdisciplinary approach, applicants should elucidate mechanisms of bioremediation and use that knowledge to address challenging scenarios for which bioremediation may be a solution. It is expected the major outcomes of this program will be the elucidation of mechanisms impacting bioremediation success and stimulation of innovative transdisciplinary approaches incorporating materials science to optimize bioremediation. Overall, this program will facilitate cutting-edge transdisciplinary science needed to advance research in bioremediation relevant to the goals of the SRP.

Applicants are encouraged to propose advanced approaches that combine a mechanistic understanding of bioremediation and materials science including, but not limited to:

- Utilization of nanotechnology-enabled frameworks to understand the basic structural properties of microorganisms/plants and to enhance bioremediation of hazardous substances;
- Utilization of machine learning to predict optimal conditions and pathways to apply innovative materials that stimulate bioaugmentation or to customize the design of new materials to enhance mechanistic understanding and effectiveness of bioremediation;
- Integration and analysis of 'omics' data from across several hazardous sites to discover new options for development of innovative materials for bioaugmentation/biostimulation;
- Development of controlled, engineered microenvironments to overcome biogeochemical/ecological limitations of biodegradation, to prevent formation of unintended byproducts, or to accommodate biodegradation of multiple contaminants;
- Employment of nanotech-derived devices and materials to investigate the mechanisms underlying bioremediation so that more effective remediation strategies could be created;
- Integration of novel materials science-enhanced bioamendment delivery with advanced site models to better understand biogeochemical and ecological mechanisms of bioremediation.

Awards: Application budgets should reflect the actual needs of the proposed project and are limited to $200K direct costs per year.
Letter of Intent: March 20, 2020
Deadline: April 20, 2020. No late applications will be accepted for this Funding Opportunity Announcement.
All applications are due by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: Collaborative Program Grant for Multidisciplinary Teams (RM1 - Clinical Trial Optional)
Agency: National Institutes of Health PAR-20-103
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-20-103.html
Brief Description: This funding opportunity announcement (FOA) encourages Collaborative Program Grant applications from institutions/organizations that propose to conduct research to address complex and challenging biomedical problems, important for the mission of NIGMS, through deeply integrated, multidisciplinary research teams. The Collaborative Program Grant is designed to support research in which funding a team of interdependent investigators offers significant advantages over support of individual research project grants. Applications should address critical issues and be sufficiently challenging, ambitious, and innovative that objectives could not be achieved by individual investigators.

Successful Collaborative Program Grant applications will bring together scientists to apply complementary approaches to work on an important and well-defined problem. Applications may address any area of science within the NIGMS mission, which is to support basic research that increases understanding of biological processes at a range of levels, from molecules and cells, to tissues, whole organisms, and populations. NIGMS also supports research in a limited number of clinical areas that affect multiple organ systems. Truly new interdisciplinary ideas for approaching significant biological problems are encouraged. Applications that bridge the research interests of more than one NIGMS division are also encouraged, but must remain within the scope of the NIGMS mission. Research with the overall goal to gain knowledge about a specific organ or organ system, or the pathophysiology, treatment, or cure of a specific disease or condition will, in most cases, be more appropriate for another Institute or Center. Consultation with NIGMS staff (see below) prior to preparing an application is strongly encouraged.

Applications submitted to this FOA are expected to propose a single, well-integrated research plan of sufficient scope, complexity, and impact to justify the investment of significant resources. Applicants are expected to describe a cohesive program with a single set of specific aims sufficient to accomplish program objectives that can be achieved within a maximum of ten years (one five-year program with one five-year competitive renewal). Program objectives that are unlikely to be achieved within ten years are not appropriate for this FOA.

Applications should be sufficiently challenging, ambitious, and innovative that the proposed research cannot be achieved by a single investigator or small group of investigators. Therefore, a multiple PD/PI application is required and applications must include a minimum of three and a maximum of six PD/PIs who are all necessary to provide sufficient research capacity and the relevant expertise to address the proposed scientific problem. Applications that propose extrapolations of a single line of research or propose parallel but independent advancement of different areas are not appropriate for this FOA.

Award: NIGMS anticipates supporting no more than 4-6 awards, corresponding to a total of $10,000,000 (total costs) for fiscal year 2021.

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

Deadline: May 27, 2020; January 27, 2021; May 27, 2021; January 27, 2022; May 27, 2022; January 27, 2023

All applications are due by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).

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

Grant Program: IDeA Networks of Biomedical Research Excellence (INBRE) (P20 Clinical Trial Optional)

Agency: National Institutes of Health PAR-20-102

RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-20-102.html

Brief Description: The National Institute of General Medical Sciences (NIGMS) of the National Institutes of Health (NIH) invites applications for Institutional Development Award (IDeA) Networks of Biomedical Research Excellence (INBRE) grants within IDeA-eligible states to independent biomedical research institutes and/or research institutions that award doctoral degrees in health-related sciences. INBRE applications represent collaboration between research intensive institutions, primarily undergraduate institutions (PUIs), community colleges, and Tribally Controlled Colleges and Universities (TCCUs).

This Funding Opportunity Announcement (FOA) builds on the successes of the INBRE program to augment and strengthen the state's biomedical research capacity. The primary goals of the INBRE

program are to: 1) build on the established multi-disciplinary research network to strengthen the lead and partner institutions' biomedical research expertise and infrastructure; 2) build and increase the research base and capacity by providing support to faculty, postdoctoral fellows, and graduate students at the participating institutions; 3) provide research opportunities for students from PUIs, community colleges, and TCCUs and serve as a "pipeline" for these students to continue in biomedical research careers within IDeA states; and 4) enhance the science and technology knowledge of the state's workforce.

For the purposes of this FOA, "primarily undergraduate institutions" include U.S. two-year, four-year, masters-level, and small doctoral-granting colleges and universities that (1) grant baccalaureate degrees in NIH-supported fields, or provide programs of instruction for students pursuing such degrees with institutional transfers (e.g., two-year schools); (2) have undergraduate enrollment exceeding graduate enrollment; and (3) award an average of no more than 10 Ph.D. or D.Sc. degrees per year in biomedical and behavioral sciences.

The INBRE program seeks to promote the development and expansion of unique, innovative, state-of-the-art biomedical and behavioral research at institutions in IDeA-eligible states, encompassing the full spectrum of basic, clinical, and translational sciences. The NIH recognizes that the contributions from the institutions in IDeA-eligible states are important and essential in fulfilling the promise of the NIH research agenda. The intent of this FOA is to continue assisting these institutions to implement and use the technologies and other resources needed to conduct state-of-the-art biomedical and behavioral research and provide research experiences to students at baccalaureate institutions, community colleges, and TCCUs.

Award: Direct costs are limited to $2.75 million per year, excluding facilities and administrative (F&A) costs on consortium arrangements. In addition, this FOA will provide one-time funds of up to $250,000 in direct costs in the first year of the award for alteration and renovation to improve existing core laboratories, research laboratories and/or animal facilities at the PUIs, community colleges, and TCCUs. **Only one award will be made per IDeA-eligible state**.

Letter of Intent: Not Required

Deadline: May 20, 2020; May 20, 2021; May 20, 2022

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

Grant Program: Environmental Health Sciences Core Centers (EHSCC) (P30 Clinical Trial Optional)

Agency: National Institutes of Health RFA-ES-20-006

RFP Website: https://grants.nih.gov/grants/guide/rfa-files/RFA-ES-20-006.html

Brief Description: The NIEHS Environmental Health Sciences Core Centers (EHS CC) Program is intended to bring together investigators currently funded by NIH or other Federal or non-Federal sources to enhance the effectiveness of existing research and extend the focus of research for the environmental health sciences. An EHS CC should support innovation and be on the cutting edge of science. It is expected that research activities will cross a variety of disciplines to bring multiple perspectives and approaches to bear on significant problems. It is expected that the interdisciplinary nature of an EHS CC will have a synergistic effect that results in greater depth, breadth, quality, innovation and productivity beyond what individual scientists would be likely to attain by working independently and as such lead to translational research opportunities. As intellectual hubs for environmental health research, the membership of EHS CC's is expected to be the thought leaders for the field as well as advance the goals of the NIEHS Strategic Plan (http://www.niehs.nih.gov/about/strategicplan/.)

The overall goals for the EHS CC Program are to enhance the capabilities of existing programs in environmental health sciences, assist with building programmatic and scientific capacity, lead in the development of novel research directions, recruit and groom future leaders in the field, and pioneer efforts in community engagement. The EHS CC grant provides facilities and resources to accelerate research along the spectrum from basic mechanistic and toxicological science to population and public health and dissemination. Moreover, with the release of the translational research (TR) framework for the environmental health sciences (https://www.niehs.nih.gov/translation), it is expected that an EHS CC facilitate translational research that encompasses all aspects of an EHS CC. The TR framework is an innovative tool that incorporates the dynamic nature of environmental health research to inform and facilitate the use of scientific/public health advances across the translational spectrum to accelerate improving the health of individuals and the public.
Award: New or first-time applicants are limited to $850,000 Direct Costs per year. Renewal applications are limited to $1.0M Direct Costs per year. See Eligibility requirements.
Letter of Intent: April 18, 2020, March 16, 2021, March 14, 2022
Deadline: May 18, 2020, April 16, 2021, April 14, 2022.
All applications are due by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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

Grant Program: Microsystems Technology Office (MTO)
Agency: Department of Defense HR001120S0036
Website: https://beta.sam.gov/opp/a429587c4a284ad6a78ad1cf70c02d5c/view
Brief Description: MTO seeks to develop high-risk, high-reward technologies that continue DARPA's mission of creating and preventing strategic surprise, help to secure the Department of Defense's (DoD) technological superiority, and address the complex threats facing U.S. national security. 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.
As MTO evolves to address future microsystems-related challenges, the office has identified four thrust areas: (1) Embedded Microsystem Intelligence and Localized Processing, (2) Next Generation Front-End Component Technologies for Electromagnetic (EM) Spectrum Dominance, (3) Microsystem Integration for Increased Functional Density and Security, and (4) Disruptive Defense Microsystem Applications. Each of these overlapping spaces present significant opportunities for exploring new and creative technologies.
1. Embedded Microsystem Intelligence and Localized Processing: Advances in artificial intelligence and machine learning-specific processors, graphic processing units (GPUs), and other special purpose computation technologies offer a new path to overcome such limitations. MTO seeks to explore the development of sensors and systems that enable specialized computation at the tactical edge and microsystems capable of learning, moving beyond those with pre-set functions. One area of particular interest within this topic is technologies to achieve improved cognitive electronic warfare (EW).
2. Next Generation Front-End Component Technologies for Electromagnetic (EM) Spectrum Dominance: For many DoD command, control, communications, computing, intelligence, surveillance, and reconnaissance (C4ISR) and EW systems, the analog and mixedsignal front-end fundamentally determines key performance characteristics, such as bandwidth, tuning range, dynamic range, etc. Often

these requirements greatly exceed the needs of the commercial sector. Thus, these technologies tend to be niche and largely ignored by the commercial electronics industry, but they hold extraordinary value for the DoD. To maintain dominance in the EM battlespace, MTO is investing in a new set of emerging material, device, and circuit approaches that provide leapahead performance in the sensing and modulation for radio frequency (RF), active and passive photonic, electro-optical/infrared (EO/IR), and magnetic-field applications.

3. Microsystem Integration for Increased Functional Density and Security: Over the past decades, microelectronics advancement has proceeded through several waves – the first wave was controlled by device scaling, the second by the introduction of new materials and architectures, and the third through the creation of 3D devices. MTO has assumed a leadership role in the ongoing "Fourth Wave" revolution that will be dominated by 3D heterogeneous integration at multiple length scales. Fine-scale integration will bridge the technical gap between traditional assembly technology and the lithography-defined back-end-of-the-line dense interconnects. A key part of this vision is that fine-scale integration can serve as a means to tie together the incredibly powerful but widely available commercial

Awards: This BAA is primarily, but not solely, intended for early stage research (studies) that may lead to larger, focused, MTO programs in the future. Studies are defined as single phase efforts of short duration (< 12 months) costing less than $1,000,000.

Proposal Deadline:

Abstract Due Date: January 3, 2022

Full Proposal Due Date: March 13, 2022

Contact Information: BAA Coordinator HR001120S0018@darpa.mil

Grant Program: Atmosphere as a Sensor (AtmoSense)

Agency: Department of Defense HR001120S0036

Website: https://beta.sam.gov/opp/c1e7a196007d4cdc9e47be0d722d11ef/view

Brief Description: AtmoSense seeks to develop the scientific understanding to exploit signatures for geolocation of natural sources that disturb the Earth's atmosphere, which are fundamentally different than those relied upon by direct observation approaches.

The ionospheric disturbances are thought to be due to acoustic and/or gravity waves that are produced by the interaction between the source and the atmosphere. The qualitative physical explanation for how this occurs is fairly straightforward. Ground based sources of disturbance such as mining operations or storm cells can launch mechanical waves spanning from the infrasonic to the ultrasonic. As these transient disturbances travel radially outward from the source, those wave components that propagate low in altitude along the surface of the Earth are dampened by the troposphere. However, those wave components that travel along the Earth's radial direction (i.e. higher in altitude) experience less dampening as the mean free path between atmospheric constituents increases due to decreasing air density. As this energy propagates, it can evolve into phenomena such as acoustic waves, gravity waves, or acoustic-gravity waves, as well as any non-linearly triggered transformations. Passing from the troposphere, through the stratosphere, and into the mesosphere, this energy eventually strikes the ionosphere. Because the electrons in the ionosphere must follow the Earth's magnetic field lines, compression occurs, and the ionosphere responds by launching traveling disturbances.

AtmoSense will attempt to understand the fundamentals of energy propagation from the ground to the ionosphere in order to determine if the atmosphere can be used as a sensor. This entails developing new modeling and simulation capabilities as well as new sensing modalities that can be combined to answer a set of fundamental questions that will help determine the feasibility of the AtmoSense concept. Among these basic science questions to be answered are:

1. What is the nature of transmitted signals?

2. What mode structure (mechanical and electromagnetic) can the mesosphere and lower ionosphere support?

3. What dynamic variables are best measured and at what altitude to capture source disturbed information?

The AtmoSense approach will consist of three technical areas (TAs) designed to answer these general basic science questions in order to demonstrate the viability of the AtmoSense concept.

TA1 - Modeling and Simulation will develop the model and simulation (M&S) and analytical approximations to connect near-field disturbances to far-field mechanical and electromagnetic perturbations.

TA2 - Characterization of the Background will experimentally characterize the background and mode structure of the mesosphere and lower ionosphere.

TA3 - Sensing Modalities will develop new sensing modalities, use old sensing modalities in new ways, and/or exploit natural/non-natural emitters to detect mechanical and electromagnetic variations of the atmosphere.

Note that while there appears to be overlap between TA2 and TA3, TA2 is primarily focused on measuring the background or noise of the atmosphere, whereas TA3 is focused on measuring the transient signal through the noise background. Thus, there will be stricter requirements in TA3 regarding required sensitivities as well as a focus on developing innovative measurement techniques that are "noise resistant."

Awards: TBA

Proposal Deadline:

Abstract Due Date: 03/13/2020, 4:00 p.m.

Full Proposal Due Date: 04/22/2020, 4:00 p.m

Contact Information: BAA Coordinator AtmoSense@darpa.mil

Grant Program: FY 2021 Multidisciplinary Research Program of the University Research Initiative (MURI)

FY 2021 MURI- ARMY Submission

FY 2021 MURI -ONR Submission

FY 2021 MURI -AFOSR Submission

Agency: Department of Defense

ONR Announcement # N00014-20-S-F003 ARO Announcement # W911NF-20-S-0009 AFOSR Announcement # FOA-AFRL-AFOSR-2020-0002

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

Brief Description: The MURI program supports basic research in science and engineering at U.S. institutions of higher education (hereafter referred to as "universities") that is of potential interest to DoD. The program is focused on multidisciplinary research efforts where more than one traditional discipline interacts to provide rapid advances in scientific areas of interest to the DoD. As defined in the DoD Financial Management Regulation: Basic research is systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. It includes all scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs. White papers and proposals addressing the following topics should be submitted to the Office of Naval Research (ONR):

ONR:

Topic 1: Molecular Qubits for Synthetic Electronics

Topic 2: A Brain-based Compositional Framework for Robust Computer Vision
Topic 3: Littoral Ocean Dynamics off Rocky Coasts and Shorelines
Topic 4: Fog and Turbulence
Topic 5: Dynamic Tuning of Thermal Transport
Topic 6: Chemically and Thermally Insensitive Super/Ultra-Hard Materials
Topic 7: Narrative, Moral and Social Foundations of Social Cyber-Attack in Social Media
Topic 8: A Dynamics and Control Theory of Safe, Cognitive and Learning Systems
Topic 9: Understanding Turbulence-Chemistry Interactions in Non-Equilibrium, High-Speed Flows
Topic 10: Predicting Organic Molecular Decomposition
White papers and proposals addressing the following topics should be submitted to the Army Research Office (ARO):
ARO:
Topic 11: Anomalous Dipole Textures in Engineered Ferroelectric Materials
Topic 12: Cyber Autonomy through Robust Learning and Effective Human/Bot Teaming
Topic 13: Highly Heterogeneous Meta-macrostructures Created via Fine-particle Interactions
Topic 14: Non-Silica Inorganic Material Phases Synthesized from Genetically Modified Diatoms
Topic 15: Novel Mechanisms of Neuro-Glio Bio-Computation and Reinforcement Learning
Topic 16: Quantum Network Science
Topic 17: The Same is Different: Integrating Multiple Phenomena in Single Materials
Topic 18: Tunable Dilute Anion III-Nitride Nanostructures for Stable Photocatalysis
White papers and proposals addressing the following topics should be submitted to the Air Force Office of Scientific Research (AFOSR):
AFOSR:
Topic 19: Mechanisms of Novel Reactivity in Aqueous Microdroplets
Topic 20: Topological Plasma Electromagnetics
Topic 21: Interfacial Engineering of Superconductors
Topic 22: Targeted Optical Stimulation of Individual Retinal Photoreceptors
Topic 23: Quantum Random Access Memory
Topic 24: Metasurface Edge Sensing, Processing and Computing
Topic 25: Non-Hermitian Programmable Materials at Exceptional Points
Topic 26: Mathematical Foundations for Enabling Robust Optimal Design of Hypersonic Systems
White papers and proposals addressing the following OSD topic should be submitted to the Air Force Office of Scientific Research (AFOSR):
OSD:
Topic 27: Advanced Modeling of Evolutionary Cyber Eco-Systems with Autonomous Intelligence
Award: Standard Grants; Typical annual funding per grant is in the $1.25M to $1.5M range. Available Funding: $180,000,000
Proposal Deadline:
White Papers due: 01 June 2020 (Monday) at 11:59 PM Eastern Time
Applications due: 14 September 2020 (Monday) at 11:59 PM Eastern Time
Contact Information:
Office of Naval Research Dr. Ellen Livingston Email: ellen.s.livingston@navy.mil
Army Research Office DR. LARRY RUSSELL, JR. Email: usarmy.rtp.ccdc-arl.mbx.aro-muri@mail.mil
Air Force Office of Scientific Research MS. KATIE WISECARVER Email: MURI@us.af.mil
DoD Liaison (for OSD topic) Dr. Jennifer Becker Email: jennifer.j.becker.civ@mail.mil

Grant Program: FY 2021 Defense University Research Instrumentation Program (DURIP)- AFOSR Submission
FY 2021 Defense University Research Instrumentation Program (DURIP)- ARMY Submission
FY 2021 Defense University Research Instrumentation Program (DURIP)- ONR Submission
Agency: Department of Defense AFOSR: FOA-AFRL-AFOSR-2020-0001
Dept od Army W911NF-20-S-0006
Office of Naval Research FOA-AFRL-AFOSR-2020-0001
Website: https://www.grants.gov/web/grants/search-grants.html
https://www.wpafb.af.mil/Welcome/Fact-Sheets/Display/Article/842111/afosr-funding-opportunities-university-research-initiative-uri/#anchor1
https://www.onr.navy.mil/en/Education-Outreach/Sponsored-Research/University-Research-Initiatives/DURIP
Brief Description: The Department of Defense (DoD) announces the Fiscal Year 2021 Defense University Research Instrumentation Program (DURIP). DURIP is designed to improve the capabilities of accredited United States (U.S.) institutions of higher education to conduct research and to educate scientists and engineers in areas important to national defense, by providing funds for the acquisition of research equipment or instrumentation. For-profit organizations are not eligible for DURIP funding. Proposing institutions should be seeking to purchase instrumentation in support of research areas of interest to the DoD, including areas of research supported by the administering agencies.
Army Research Office at **http://www.aro.army.mil**
Select "Broad Agency Announcements" in the "For the Researcher" section to see the most recent ARL or ARO Core Broad Agency Announcement for Basic and Applied Scientific Research.
Office of Naval Research at http://www.onr.navy.mil/ .
Select "Contracts and Grants" and then "Funding Opportunities" to see the Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology, BAA N00014-18-S-B001.
Air Force Office of Scientific Research at http://www.wpafb.af.mil/afrl/afosr/
Awards: DURIP funds will be used for the acquisition of major equipment to augment current or develop new research capabilities in support of DoD-relevant research. Proposals may request $50,000 to $1,500,000. Proposals for purely instructional equipment are not eligible. General-purpose computing facilities are not appropriate for DURIP funding, but requests for computers for DoD-relevant research programs are appropriate.
Proposal Deadline: May 15, 2020
Contact Information:
Army Research Office
DR. LARRY RUSSELL, JR.
Phone: (919) 549-4211
E-mail: usarmy.rtp.rdecom-aro.mbx.durip@mail.mil
Office of Naval Research
DR. ELLEN LIVINGSTON
Phone: (703) 696-4668
E-mail: ellen.s.livingston@navy.mil
Air Force Office of Scientific Research
MS. KATIE WISECARVER
Phone: (703) 696-9544
E-mail: durip@us.af.mil

Grant Program: Quantum Information Sciences
Agency: Department of Defense FA8750-20-S-7006
Website:
https://beta.sam.gov/opp/dd6cccb1a9424440b7f0ff1d60ba9b7b/view?keywords=intelligence&sort=-modifiedDate&index=opp&is_active=true&page=1
Brief Description: The Air Force Research Laboratory - Information Directorate (AFRL/RI) is soliciting white papers under this Broad Agency Announcement (BAA) for research, design, development, concept testing, evaluation, experimentation, integration and delivery of Quantum Information Sciences supporting the implementation and use of Command, Control, Communications, Computers & Intelligence (C4I)-related information and communications technologies and techniques. In particular, this effort seeks to advance and assess advanced algorithm designs and technologies harnessing emerging quantum computing techniques to support AFRL/RI's C4I mission.

AFRL/RI has established a Quantum Information and Science branch (RITQ). Research within this branch will include Quantum Algorithms and Computing, Memory-Node-Based Quantum Networking, Quantum Information Processing, Superconducting Hybrid Quantum Platforms, and Quantum Information Sciences. These technologies will have both in-house and contractual based requirements to support the overall mission of the RITQ branch.
Further, AFRL/RI is interested in developing a user community around this emerging technology, to consist of other U.S. Government organizations (federal, state, and local), U.S. Government contractors and commercial industry, and academia (both public and private).
Awards: Various. Total funding for this BAA is approximately $49.9M. Individual awards will not normally exceed 36 months with dollar amounts normally ranging from $0.5M to $2M.
Proposal Deadline: FY21 by 30 Sep 2020; FY22 by 30 Sep 2021
Contact Information: Kristi Mezzano
AFRL/RITQ
Telephone: (315) 330-2448 Email: AFRL.RIT.Quantum@us.af.mil

Grant Program: NRL Long Range Broad Agency Announcement (BAA) for Basic and Applied Research
Agency: Department of Defense Naval Research Laboratory N00173-19-S-BA01
Website: https://www.nrl.navy.mil/doing-business/Current-NRL-BAA
Brief Description: The Naval Research Laboratory (NRL) The Naval Research Laboratory (NRL) is the Navy's corporate laboratory. NRL conducts basic and applied research for the Navy in a variety of scientific and technical disciplines. The basic research program is driven by perceptions about future requirements of the Navy. NRL conducts most of its research program at its own facilities but also funds some related research such as anticipated by this announcement. More extensive research support opportunities are available from the Naval Research Laboratory (NRL). NRL announcements may be accessed via the Internet at https://www.nrl.navy.mil/doingbusiness/contracting-division/baa.

NRL is interested in receiving proposals for Long-Range Science and Technology (S&T) Projects which offer potential for advancement and improvement of Navy and Marine Corps operations. Readers should note that this is an announcement to declare NRL's broad role in competitive funding of meritorious research across a spectrum of science and engineering disciplines. A brief description of the NRL Program Codes and the science and technology thrusts that NRL is pursuing is provided below. Additional information can be found at the NRL website at https://www.nrl.navy.mil/research/directorates-divisions/.
Awards: Various
Proposal Deadline: September 05, 2020

Contact Information: Mary A Johnson; Procurement Analyst; Phone 202-767-2021
General Inquiries

Grant Program: Air Superiority Technology Broad Agency Announcement
Agency: Department of Defense FA8651-20-S-0008
Website:
https://www.fbo.gov/index?s=opportunity&mode=form&id=dbdb4a35cb22a4a0d8414b652f0c74bb&tab=core&_cview=0
Brief Description: For purposes of this announcement, research is defined to be scientific study and experimentation directed at increasing knowledge and understanding in relation to long term national security needs. It is an enhancement to related exploratory and advanced development programs. A program should be designed to demonstrate well-defined and substantive research results, should not be overly ambitious or open-ended, and should not be a paper study that inherently requires a substantial testing effort.
RESEARCH AREA 1 – MODELING, SIMULATION, & ANALYSIS (MS&A): The objective of this work is to develop/modify and employ models used to analyze Air Superiority concepts and their related concepts of employment. The objective is to apply, modify and/or combine engineering, engagement (one-on-one), mission (few-on-few), systems-of-systems, campaign (many-on-many, military worth), level modeling techniques, tools, and analysis methods as well as virtual and constructive digital simulation which lend themselves to the quick and effective evaluation of air superiority concepts. Concepts include, but are not limited to, intercommunicative weapons, novel damage mechanisms, lethal and novel destruct mechanisms, multiple targeting, and time critical delivery. Detailed modeling includes, but is not limited to, sensors, aerodynamics, autopilots, navigation and guidance schemes, propulsion, warheads, fuzes, datalinks, fire control, launcher, suspension, carriage and release, error filters, environment (wind, fog, and dust), lethality, vulnerability, and threats.
RESEARCH AREA 2 – INNOVATIVE AIRCRAFT INTEGRATION TECHNOLOGIES The objective of this work is to design, develop, and demonstrate innovative aircraft integration technologies including but not limited to physical, electrical, and logical interfaces; and other aspects of aircraft integration that may be applicable.
RESEARCH AREA 3 –FIND-FIX-TARGET-TRACK (F2T2) & DATALINK TECHNOLOGIES The objective of this work is to design, develop, and demonstrate innovative Find, Fix, Target, and Track (F2T2) technologies for the detection of threats to aircraft. These F2T2 technologies should provide threat warning, threat characteristics, You Are The One (YATO) or You Are Not The One (YANTO) discrimination, highly accurate threat cueing, range and range rate, and other pertinent information required to analyze and coordinate a response to a threat.
RESEARCH AREA 4 – ENGAGEMENT MANAGEMENT SYSTEM TECHNOLOGIES The objective of this work is to design, develop, and demonstrate an innovative Engagement Management system to maximize aircraft survivability in increasingly contested environments while mining false positives and engagement costs. These technologies should interface with aircraft and other Find-Fix-Target-Track (F2T2) systems, determine the optimum counter measure response(s), respect keep-out or no-fire zones, and make other decisions required for aircraft survivability.
RESEARCH AREA 5 – HIGH VELOCITY FUZING The objective of this work is to design, develop, and demonstrate high velocity fuzing, including both Electronic Safe and Arm (ESAF) technologies that can safely initiate a warhead and Target Detection Devices (TDDs) that can provide miniaturized, fast-responding, highly accurate range and location information for high closure velocity intercepts.
RESEARCH AREA 6 – MISSILE ELECTRONICS The objective of this work is to investigate all aspects of Missile Power & Electronics as it applies to air-toair missiles. The following technologies and research

areas are of particular interest: Power Conversion and Distribution, Power Generation and Storage Technologies (Advanced Missile Battery Technology and Ultracapacitors), Guidance Electronics, and Thermal Management.
RESEARCH AREA 7 – MISSILE GUIDANCE AND CONTROL TECHNOLOGIES The objective of this work is to investigate Missile Guidance and Control Technologies to include the following: Robust guidance algorithms against maneuvering targets, real time optimal lofting/energy management techniques, integrated guidance and control, reduced latency between seeker measurements and final control fin commands, highly accurate seeker technologies and algorithms, robust and novel target state estimators, third party queuing, optimal body orientation at endgame encounter, (reinforcement learning-adaptive control) approach, simultaneous learning and control, Hybrid (switched) guidance law selection based on the red-target strategy/maneuver, many-on-many engagement guidance laws, optimal pulse delay and propellant allocation, rapid flexible autopilot design process, robust control in aerodynamic cross coupling environments for various airframe designs from canard to tail control, robust control at high angles of attack, innovative autopilot architectures, efficient verification of safe separation over all flight regimes, Non-linear/adaptive control for agile maneuver, and advanced airframe control techniques.
RESEARCH AREA 8 – ADVANCED WARHEAD TECHNOLOGIES
More areas; Please see the BAA on above website.
Awards: Various
Proposal Deadline: This BAA will remain open through 31 October 2024 or until amended or superseded. It may be reissued and/or amended periodically, as needed.
Contact Information: Technical POC: Mr. David Hartline , AFRL, (850) 882-1324
david.hartline.1@us.af.mil

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

Department of Transportation

Grant Program: FY 2020 National Infrastructure Investments
Agency: Department of Transportation DTOS59-20-RA-BUILD
Website: https://www.transportation.gov/BUILDgrants/apply
Brief Description: Activities eligible for funding under BUILD Transportation planning grants are related to the planning, preparation, or design—including environmental analysis, feasibility studies, and other pre-construction activities—of eligible surface transportation capital projects described in Section C.3. (a). In addition, eligible activities related to multidisciplinary projects or regional planning may include: (1) Development of master plans, comprehensive plans, or corridor plans; (2) Planning activities related to the development of a multimodal freight corridor, including those that seek to reduce conflicts with residential areas and with passenger and non-motorized traffic; (3) Development of port and regional port planning grants, including State-wide or multi-port planning within a single jurisdiction or region; (4) Risk assessments and planning to identify vulnerabilities and address the transportation system's ability to withstand probable occurrence or recurrence of an emergency or major disaster.
Awards: The FY 2020 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.4.(a)) the minimum award size is $1 million. There is no minimum award size, regardless of location, for BUILD Transportation planning grants. Applicants are strongly encouraged to submit applications only for eligible award amounts.
Proposal Deadline: May 18, 2020 at 5:00pm Eastern Time.
Contact Information: For further information, please contact the BUILD Transportation grants program staff via e-mail at BUILDgrants@dot.gov, or call Howard Hill at 202-366-0301.

Department of Agriculture:

Grant Program: Scientific and Cooperative Research Program
Agency: Department of Agriculture USDA-FAS-10961-0700-10-20-0001
Website: https://www.grants.gov/web/grants/search-grants.html
Brief Description: The United States Department of Agriculture's (USDA) Foreign Agricultural Service (FAS) announces the availability of funding through cost reimbursable agreements for the Scientific Cooperation Research Program (SCRP) for fiscal year (FY) 2020.
SCRP will support applied research, extension, and education projects — lasting up to two years between U.S. researchers and researchers from selected emerging market economies - that create practical solutions to challenges faced by small farmers and build regional or global trade capacities in FAS countries. In general, applications should support one or more of the following strategies of the Global Food Security Act (Public Law No: 114-195):
1.Accelerate inclusive, agricultural-led economic growth that reduces global poverty, hunger, and malnutrition, particularly among women and children.
2.Increase the productivity, incomes, and livelihoods of small-scale producers, especially women, by working across agricultural value chains, enhancing local capacity to manage agricultural resources effectively, and expanding producer access to local and international markets.
3.Build resilience to food shocks among vulnerable populations and households while reducing reliance upon emergency food assistance.
4.Create an enabling environment for agricultural growth and investment, including through the promotion of secure and transparent property rights.

5.Improve the nutritional status of women and children, with a focus on reducing child stunting, including through the promotion of highly nutritious foods, diet diversification, and nutritional behaviors that improve maternal and child health;
6.Align with and leverage broader United States strategies and investments in trade, economic growth, science and technology, agricultural research and extension, maternal and child health, nutrition, and water, sanitation, and hygiene.
Awards: $500,000 total (up to $50,000 per award)
Proposal Deadline: Application Submission Deadline: March 2, 2020
Contact Information: Sintayehu Assefa Phone: +1-202-720-2200 Email: SINTAYEHU.ASSEFA@USDA.GOV

Grant Program: Biotechnology Risk Assessment Grants Program
Agency: Department of Agriculture USDA-NIFA-BRAP-007072
Website: https://nifa.usda.gov/funding-opportunity/biotechnology-risk-assessment-research-grants-program-brag
Brief Description: The purpose of the BRAG program is to support the generation of new information that will assist Federal regulatory agencies in making science-based decisions about the effects of introducing into the environment genetically engineered organisms (GE), including plants, microorganisms — such as fungi, bacteria, and viruses — arthropods, fish, birds, mammals and other animals excluding humans. Investigations of effects on both managed and natural environments are relevant. The BRAG program accomplishes its purpose by providing federal regulatory agencies with scientific information relevant to regulatory issues. See the Request for Applications (RFA) for details. View the Centers of Excellence (COE) webpage to access a factsheet on the COE designation process, including COE criteria, and a list of programs offering COE opportunities.
Awards: Up to $500,000; Anticipated available funding: $4,500,000
Proposal Deadline: Mar 18, 2020 FY 2020: March 18, 2020 FY 2021: February 24, 2021 Letter of Intent Deadline: February 12, 2020; January 21, 2021 Note: Letter of Intent encouraged but not required
Contact Information: Dr. Lakshmi Matukumalli lakskhmi.matukumalli@usda.gov (816)-926-1189

Grant Program: Agriculture and Food Research Initiative - Foundational and Applied Science
Agency: Department of Agriculture USDA-NIFA-AFRI-007052
Website: https://nifa.usda.gov/funding-opportunity/agriculture-and-food-research-initiative-foundational-applied-science-program
Brief Description: The AFRI Foundational and Applied Science Program supports grants in six AFRI priority areas to advance knowledge in both fundamental and applied sciences important to agriculture. The six priority areas are: Plant Health and Production and Plant Products; Animal Health and Production and Animal Products; Food Safety, Nutrition, and Health; Bioenergy, Natural Resources, and Environment; Agriculture Systems and Technology; and Agriculture Economics and Rural Communities. Research-only, extension-only, and integrated research, education and/or extension projects are solicited in this Request for Applications (RFA). See Foundational and Applied Science RFA for specific details.
Awards: Anticipated Funding: $192,600,000
Submission Deadline: Agricultural Innovation through Gene Editing - Letter of Intent required
Letter of Intent Deadline - February 19, 2020
Agricultural Microbiomes - Letter of Intent required
Letter of Intent Deadline - March 10, 2020
Tactical Sciences for Agricultural Biosecurity - Letter of Intent required

Letter of Intent Deadline - March 10, 2020
All Conference Grants - Letter of Intent required
Letter of Intent Deadline - Minimum of 135 days before the conference begins
Application Deadline Dates: Dates vary by program area priority
Contact: Technical Contact: Dr. Louis Tupas, Deputy Director, Institute of Bioenergy, Climate, and Environment Telephone: (202) 401-5022 Fax: (202) 401-6488 E-mail: AFRI@nifa.usda.gov

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Grant Program: REAP-Renewable Energy Systems and Energy Efficiency Improvements
Agency: Department of Agriculture RDBCP-11-REAP-RES-EEI-2020
Website: https://www.govinfo.gov/content/pkg/FR-2019-08-30/pdf/2019-18825.pdf
Brief Description: Eligible applicants are agricultural producers and rural small businesses. All agricultural producers, including farmers and ranchers, who gain 50% or more of their gross income from the agricultural operations are eligible. Small businesses that are located in a rural area can also apply. Rural electric cooperatives may also be eligible to apply. Additional Information on Eligibility:Citizenship - To be eligible, applicants must be individuals or entities at least 51 percent owned by persons who are either: 1) citizens of the United States (U.S.),the Republic of Palau, the Federated States of Micronesia, the Republic of the Marshall Islands, or American Samoa; or 2) legally admitted permanent residents residing in the U.S.Project - The project must be to conduct a feasibility study for a renewable energy system. Eligible technologies include: projects that produce energy from wind, solar, biomass, geothermal, hydro power and hydrogen-based sources.
Awards: Up to $500,000; Anticipated Funding: $70 million
Submission Deadline: September 30, 2020
Contact: Technical Contact: Maureen Hessel, Energy Specialist, Phone 202-401-0142

Department of Labor

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

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

The purpose of this grant program is to promote apprenticeships as a significant workforce solution in filling current job vacancies and closing the skills gap between employer workforce needs and the skills of the current workforce. The overarching goals of this grant program are threefold: (1) to accelerate the expansion of apprenticeships to industry sectors and occupations that have not traditionally deployed apprenticeships for building a skilled workforce, such as cybersecurity, artificial intelligence, and health care; (2) to promote the large-scale expansion of apprenticeships across the nation to a range

of employers, including small and medium-sized employers; and (3) to increase apprenticeship opportunities for all Americans. Recognizing that apprenticeship is a training strategy that operates on both the supply side and the demand side of the labor market, this grant program aims to increase both the number of apprenticeship positions and the ability of all Americans to gain access to this proven pathway to family-sustaining careers.
Awards: We will award up to $100 million in H-1B funds initially to fund approximately 16 to 30 apprenticeship grants, with awards ranging from $500,000 to $6 million.
Anticipated Funding: $100,000,000
Proposal Deadline: September 24, 2019 no later than 4:00:00 p.m. Eastern Time. Passed: FYI
Contact Information: Denise Roach Grants Management Specialist roach.denise@dol.gov

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EPA

Grant Program: FY 2020 – FY 2021 Source Reduction Assistance Grant Program
Agency: Environmental Protection Agency
Website: https://www.epa.gov/sites/production/files/2020-02/documents/general_sra_grant_guidance.pdf
Brief Description: EPA is announcing a grant competition to fund two-year Source Reduction Assistance (SRA) agreements that support research, investigation, study, demonstration, education and training using source reduction approaches (also known as "pollution prevention" and herein referred to as "P2"). P2 means reducing or eliminating pollutants from entering any waste stream or otherwise released into the environment prior to recycling, treatment, or disposal. EPA is particularly interested in receiving applications that offer hands on practical P2 tools, information and/or innovative P2 approaches to measurably improve the public health and the surrounding environment, by reducing the use of hazardous substances, reducing toxic pollutants, supporting efficiencies in reducing resource use (e.g., water and energy), and reducing business expenditures and liability costs.
Award: EPA plans to award a total of approximately $1.3 million in federal SRA grant funding issued over a twoyear funding cycle (approximately $658,000 in FY 2020 funds and approximately $658,000 in FY 2021 funds).
Submission Deadline: April 30, 2020
Contact: Michele Amhaz, 202-564-8857 amhaz.michele@epa.gov

Grant Program: National Environmental Education and Training Program
Agency: Environmental Protection Agency EPA-OA-EE-20-11
Website: https://www.epa.gov/education/national-environmental-education-and-training-program-solicitation-notice-2020-rfa
Brief Description: The purpose of the National Environmental Education and Training Program is to deliver environmental education (EE) training and long-term support to education professionals across the U.S. in the development and delivery of environmental education and training programs and studies.
Award: Under this competition, one cooperative agreement is expected to be awarded to a U.S. institution of higher education, a not-for-profit institution or a consortium of such institutions. The total estimated funding for the first year of the award (FY 2020) is $2,175,500. For planning purposes,

funding for years two and three should be estimated to be $2,175,500 per year, subject to the availability of funds and other applicable considerations.
Submission Deadline: The closing date and time for receipt of application submissions is May 29, 2020 by 11:59 pm Eastern Time (ET).
Contact: Ginger Potter U.S. Environmental Protection Agency WJ Clinton North, potter.ginger@epa.gov

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Grant Program: Community-Scale Air Toxics Ambient Monitoring
Agency: Environmental Protection Agency EPA-OAR-OAQPS-20-05
Website: https://www.epa.gov/grants/community-scale-air-toxics-ambient-monitoring
Brief Description: EPA's Office of Air and Radiation (OAR) is soliciting applications from eligible entities for projects designed to assist state, local, and tribal air agencies in identifying and characterizing air toxics, also known as hazardous air pollutants (HAPs), through work that falls into one of four categories. Those categories are: 1) characterizing the impacts of air toxics in a community (community-scale monitoring); 2) assessing impacts of toxics emissions from specific sources (near-source monitoring); 3) evaluating new and emerging testing methods for air toxics; and, 4) analyzing existing air toxics data and developing or enhancing analytical, modeling, and/or implementation tools. Air toxics of particular interest to EPA in this solicitation include ethylene oxide, chloroprene, benzene, 1,3-butadiene, and metals such as hexavalent chromium, nickel, and arsenic. The total estimated funding for this competitive opportunity is approximately $5,000,000. EPA anticipates awarding approximately 10 to 20 assistance agreements from this announcement, subject to the availability of funds, the quality of applications received, and other applicable considerations.
EPA will hold two information sessions on the 2020 competition February 19 and 20, 2020. Information about the sessions is available on the Community-Scale Air Toxics Ambient Monitoring website.
Award: Up to $750,000 per award; Anticipated available funding: $5,000,000
Submission Deadline: March 30, 2020
Contact: Nealson Watkins, watkins.nealson@epa.gov

Department of Energy

Grant Program: Measurement Innovations for Fusion Energy and Plasmas
Agency: Department of Energy DE-FOA-0002280
Website: https://science.osti.gov/-/media/grants/pdf/foas/2020/SC_FOA_0002280.pdf
Brief Description: The DOE SC program in Fusion Energy Sciences (FES) hereby announces its interest in receiving new and renewal applications for awards in the area of Measurement Innovations for Fusion Energy and Plasmas. The FES program seeks to expand the fundamental understanding of matter at very high temperatures and densities and to foster the scientific foundation that will enable an eventual fusion energy source. The FES Measurement Innovation program supports the development of novel and innovative diagnostic techniques and their application to new, unexplored, or unfamiliar plasma regimes or scenarios. Awards under this FOA will enable researchers to deploy diagnostics with the spatial, spectral, and temporal resolution necessary to validate plasma physics models that predict the behavior of fusion plasmas. These advanced diagnostic capabilities are then used at domestic and international facilities as part of FES's research subprograms in Burning Plasma Science: Foundation, Burning Plasma: Long Pulse; Discovery Plasma Science: Low Temperature Plasmas; and Discovery Plasma Science: High Energy Density Laboratory Plasma. Ongoing use of mature diagnostics systems is financially supported through the research programs at the FES user facilities and through support from the subprograms.

Awards: A total of $3,000,000 in Fiscal Year 2020 appropriated funds will be used to support all years of all awards resulting from this FOA.
Submission Deadline for Pre-Applications: March 20, 2020 at 5:00 PM Eastern Time
Pre-Application Response Date: March 27, 2020
Submission Deadline for Applications: May 6, 2020 at 5:00 PM Eastern Time
Contact: Dr. Curtis W. Bolton, Fusion Energy Sciences 301-903-4914 Curt.Bolton@science.doe.gov

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Grant Program: Opportunities in Frontier Plasma Science
Agency: Department of Energy DE-FOA-0002260
Website: https://science.osti.gov/-/media/grants/pdf/foas/2020/SC_FOA_0002260.pdf
Brief Description: The DOE SC program in Fusion Energy Sciences (FES) hereby announces its interest in receiving grant applications from U.S. researchers for carrying out frontier plasma science experiments. The FES General Plasma Science (GPS) program currently supports several collaborative research facilities and initiatives. These include the Large Plasma Device (LAPD) in the Basic Plasma Science Facility (BaPSF) at the University of California – Los Angeles, the DIII-D Frontier Science Initiative at General Atomics, the Big Red Ball (BRB) and Madison Symmetric Torus (MST) experiments at the Wisconsin Plasma Physics Laboratory (WiPPL) at the University of Wisconsin – Madison, the Magnetized Dusty Plasma Experiment (MDPX) at the Magnetized Plasma Research Laboratory (MPRL) at Auburn University, the low-temperature Plasma Research Facility (PRF) at Sandia National Laboratories, and the Princeton Collaborative Research Facility (PCRF) at the Princeton Plasma Physics Laboratory. Interested U.S. researchers or principal investigators (PIs) must have already responded to the separate call for proposals from one or more of these facilities and initiatives and been allocated experimental runtime to carry out the experiments.
Awards: A total of $10,000,000 in current and anticipated future fiscal year funding will be used to support awards under this FOA
Letter of Intent: April 6, 2020 at 5:00 PM Eastern Time
Proposal Submission Deadline: May 8, 2020 at 5:00 PM Eastern Time
Contact: Office of Fusion Energy Sciences; Dr. Nirmol Podder 301-903-9536 Nirmol.Podder@science.doe.gov

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Grant Program: Scientific Discovery through Advanced Computing: Scientific Machine Learning and Artificial Intelligence for Fusion Energy Sciences
Agency: Department of Energy DE-FOA-0002224
Website: https://science.osti.gov/grants/lab-announcements/open
Brief Description: The DOE SC program in Fusion Energy Sciences (FES), and Advanced Scientific Computing Research (ASCR) invite applications under the Scientific Discovery through Advanced Computing (SciDAC) program in the area of Scientific Machine Learning and Artificial Intelligence for Fusion Energy Science. The goal of this announcement is to support research aiming to sustain and enhance the leadership position of the United States in Artificial Intelligence while addressing high-priority research opportunities identified in recent fusion community studies.

The FES mission is to expand the fundamental understanding of matter at very high temperatures and densities and to build the scientific foundations needed to develop a fusion energy source. This is accomplished through the study of plasma, the fourth state of matter, and how it interacts with its surroundings. High-performance computing (HPC) has been a traditional hallmark of the FES program, representing a world-leading U.S. strength and one of its competitive advantages. Its transformative potential was recognized in the recent FES decadal strategic directions report2 where “massively parallel

computing with the goal of validated whole-fusion-device modeling" was among the key areas of emphasis. FES partners with the ASCR program in order to dramatically accelerate progress in computing and simulation in the area of fusion energy.

Recognizing the potential of ML/AI and data science more broadly, FES and ASCR cosponsored a community workshop to identify areas in fusion science where application of ML and AI can have transformative impacts, and to identify unique needs, research opportunities, and associated gaps in ML and AI that can be addressed through targeted partnerships. The final report4 identifies several high-level priority research opportunities that span DOE's Congressionally-authorized mission-space in fusion energy sciences.

Awards: Various; Estimated Total Program Funding: $8,000,000
Letter of Intent: 03/30/2020 at 5:00 PM Eastern Time
Proposal Submission Deadline: 04/30/2020 at 5:00 PM Eastern Time
Contact: Dr. John Mandrekas, Fusion Energy Sciences Phone: (301) 903-0552 John.Mandrekas@science.doe.gov

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NASA

Grant Program: ROSES 2020: Heliophysics Supporting Research
Agency: NASA NNH20ZDA001N-HSR
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BBA3F017B-32B1-74F1-3DC5-0DC78AA76DB9%7D&path=&method=init
Brief Description: Heliophysics Supporting Research (SR) awards are research investigations of significant magnitude that employ a combination of scientific techniques. These must include an element of (a) theory, numerical simulation, or modeling, and an element of (b) data analysis and interpretation of NASA-spacecraft observations. HSR is a component of the Heliophysics Research Program and proposers interested in this program element are encouraged to see B.1, The Heliophysics Research Program Overview for Heliophysics-specific requirements. Common requirements for all ROSES elements and proposals are found in the ROSES Summary of Solicitation and the Proposer's Guidebook and the order of precedence for proposers.
Awards: Various; Available funding: $6.500.000
Notices of Intent Due: N/A
Proposal Deadline: November 18, 2020
Contact: Patrick Koehn; Email: patrick.koehn@nasa.gov

Grant Program: ROSES 2020: Astrophysics Data Analysis
Agency: NASA NNH20ZDA001N-ADAP
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BEC4AFCE9-78E3-7164-00DC-5D3E325B4EA1%7D&path=&method=init
Brief Description: Over the years, NASA has invested heavily in the development and execution of an extensive array of space astrophysics missions. The magnitude and scope of the archival data from those missions enables science that transcends traditional wavelength regimes and allows researchers to answer questions that would be difficult, if not impossible, to address through an individual observing program. To capitalize on this invaluable asset and enhance the scientific return on NASA mission investments, this Astrophysics Data Analysis Program (ADAP) program in ROSES provides support for investigations whose focus is on the analysis of archival data from NASA space astrophysics missions.
Awards: Various; Available funding: $7,000,000

Notices of Intent Due: N/S
Proposal Deadline: March 19, 2020
Contact: Douglas M. Hudgins; Email: Douglas.M.Hudgins@nasa.gov

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Grant Program: HELIOPHYSICS - Early Career Investigator Program
Agency: NASA NNH20ZDA001N-ECIP
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BBC6756FD-561A-B7A1-F68A-2A18E6851701%7D&path=&method=init
Brief Description: The Early Career Investigator Program (ECIP) in Heliophysics is designed to support outstanding scientific research and career development of scientists at the early stage of their professional careers. The program aims to encourage innovative research initiatives and cultivate diverse scientific leadership in Heliophysics. This program is designed to foster the empowerment, inspiration, and education of the next generation of space researchers, as part of the E of the DRIVE (Diversify, Realize, Integrate, Venture, Educate) initiative put forward as a high priority recommendation of the 2013 Solar and Space Physics Decadal Survey.
Awards: Various, Available funding: $1,500,000
Notices of Intent Due: N/A
Proposal Deadline: August 12, 2020
Contact: Katya Verner, Telephone: 202-358-1213 Email: Ekaterina.M.Verner@nasa.gov

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Grant Program: ROSES 2020: Astrophysics Research and Analysis
Agency: NASA NNH20ZDA001N-APRA
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BD4C56B9D-7FF4-D128-D82D-6BB8F4306D00%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
Notices of Intent Due: N/A
Proposal Deadline: December 17, 2020
Contact: Dominic J. Benford Astrophysics Division, Telephone: (202) 358-1261 Email: Dominic.Benford@nasa.gov

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Grant Program: Early Career Faculty
Agency: NASA 80HQTR20NOA01-20ECF-B1
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BACAD5344-C2D1-8304-D57E-2FE90D346946%7D&path=&method=init
Brief Description: The STRG Program within STMD is fostering the development of innovative, low-TRL technologies for advanced space systems and space technology. The goal of this lowTRL endeavor

is to accelerate the development of groundbreaking, high-risk/high-payoff space technologies, not necessarily directed at a specific mission, to support the future space science and exploration needs of NASA, other government agencies, and the commercial space sector. Such efforts complement the other NASA Mission Directorates' focused technology activities which typically begin at TRL 3 or higher. The starting TRL of the efforts to be funded as a result of this Appendix will be TRL 1 or TRL 2; typical end TRLs will be TRL 2 or TRL 3. See Attachment 2 of the NRA for TRL descriptions.

This Appendix seeks proposals to develop unique, disruptive, or transformational space technologies that have the potential to lead to dramatic improvements at the system level — performance, weight, cost, reliability, operational simplicity, or other figures of merit associated with space flight hardware or missions. Although progress under an award may be incremental, the projected impact at the system level must be substantial and clearly defined.

Awards: $200K/per year for maximum 3 years
Notices of Intent Due: February 26, 2020
Proposal Deadline: March 25, 2020
Contact: Claudia Meyer Space Technology Research Grants Program Executive hq-ecf-call@mail.nasa.gov

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Grant Program: ROSES 2019: Sustainable Land Imaging-Technology
Agency: NASA NNH19ZDA001N-SLIT
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7B628D67E6-7DF9-6DE8-B052-940659BC37F4%7D&path=&method=init
Brief Description: The aim of the Sustainable Land Imaging-Technology (SLI-T) program is to develop next-generation technology for a long-term programmatically sustainable system that as a minimum continues the historical measurement capability, and potentially improves this capability. Technology developed under this program will be considered for infusion over the lifetime of the program as a potential contributing element of the long-term sustainable program.
Awards: Various; Available funding: $1,250,000
Proposal Deadline: April 07, 2020; Pre-proposal deadline may be earlier. Please check with program officer.
Contact: Prospective proposers are requested to submit any questions in writing to sachidananda.r.babu@nasa.gov no later than 30 days before the proposal due date.

National Endowment of Humanities

Grant Program: Research and Development
Agency: National Endowment for the Humanities 20200515-PR
Website: https://www.neh.gov/grants/preservation/research-and-development
Brief Description: The Research and Development program supports projects that address major challenges in preserving or providing access to humanities collections and resources. These challenges include the need to find better ways to preserve materials of critical importance to the nation's cultural heritage—from fragile artifacts and manuscripts to analog recordings and digital assets subject to technological obsolescence—and to develop advanced modes of organizing, searching, discovering, and using such materials.

This program supports projects at all stages of development, from early planning and stand-alone studies, to advanced implementation. Research and Development projects contribute to the evolving and expanding body of knowledge for heritage practitioners, and for that reason, outcomes may take many forms. Projects may produce any combination of laboratory datasets, guidelines for standards, open access software tools, workflow and equipment specifications, widely used metadata schema, or other products.
Research and Development supports work on the entire range of humanities collection types including, but not limited to, moving image and sound recordings, archaeological artifacts, born digital and time-based media, rare books and manuscripts, material culture, and art. Applicants must demonstrate how advances in preservation and access through a Research and Development project would benefit the cultural heritage community by supporting humanities research, teaching, or public programming.
Awards: Tier I provides awards up to $75,000
Tier II provides awards up to $350,000
Deadlines:
Optional Draft due: April 10, 2020
Application due: May 15, 2020
Contact: Contact the Division of Research Programs Team 202-606-8200 fellowships@neh.gov

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Grant Program: Fellowships
Agency: National Endowment for the Humanities 20200408-FEL
Website: https://www.neh.gov/grants/research/fellowships
Brief Description: NEH Fellowships are competitive awards granted to individual scholars pursuing projects that embody exceptional research, rigorous analysis, and clear writing. Applications must clearly articulate a project's value to humanities scholars, general audiences, or both.
Fellowships provide recipients time to conduct research or to produce books, monographs, peer-reviewed articles, e-books, digital materials, translations with annotations or a critical apparatus, or critical editions resulting from previous research. Projects may be at any stage of development.
NEH invites research applications from scholars in all disciplines, and it encourages submissions from independent scholars and junior scholars.
Awards: Maximum award amount: $60,000
Deadlines: April 8, 2020
Contact: Contact the Division of Research Programs Team 202-606-8200 fellowships@neh.gov

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Michael J. Fox Foundation

Grant Program: Parkinson's Research
Agency: Michael J. Fox Foundation
Website: https://www.michaeljfox.org/funding-opportunities?em_cid=mc-a1b1R000008uKNC&et_cid=1527395&et_rid=224986205&et_lid=https%3a%2f%2fwww.michaeljfox.org%2ffunding-opportunities%3fem_cid%3dmc-a1b1R000008uKNC&em_cid=
Brief Description: Open RFAs

- Investigating Environmental Factors that Increase the Risk for Parkinson's Disease: Funds use of existing datasets to identify and/or quantify environmental exposures that influence Parkinson's risk or progression.
- Target Advancement Program: Funds research to validate targets and define pathways implicated in Parkinson's pathological processes and/or symptomology.

- Parkinson's Pathway Biomarkers: Funds research aimed at (1) developing sensitive readouts for pathway activation/dysfunction and (2) improving technologies for analyzing the target/pathway of interest.
- Therapeutic Pipeline Program: Funds novel or repositioned, pre-clinical and clinical therapeutic intervention development for Parkinson's. Specific interest in (1) developing therapeutics for non-motor symptoms and (2) early drug discovery for novel targets with few or no candidates in development.

Informational Webinar: Attend our webinar on March 27, 2020, at 12 p.m. ET to learn more about our Foundation's funding strategy and opportunities, and the application and review processes. Register Now.
Awards: Various; Up to $400,000 for up to two years
Pre-Proposal Dedaline: April 23, 2020
Contact: Please contact Richard Rosenberg at rmr@njit.edu if you are interested in submitting a proposal.

Streamlyne Question of the Week

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

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

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

Proposal Submission and Streamlyne Information

Internal Timeline for Successful and Timely Proposal Submission

Due to COVID-19 outbreak, the PIs are strongly advised to add additional time to the submission deadline as there may be issues with the agency servers and submission approvals to be resolved for successful submission. Every effort would be made to meet the deadline through remote operations following the NJIT Research Business Continuity Plan (https://www.njit.edu/coronavirus)

The NJIT Proposal Submission Guidelines and Policy posted on the website https://research.njit.edu/research-policies provides the institutional timeline in order to help faculty and staff Principal Investigators for successful proposal submission. We are requesting all Principal Investigators, faculty, staff and administration to follow the proposal submission to help everyone to submit a successful proposal on time, preferably before the deadline as requested by federal funding agencies. The following are the NJIT Proposal Submission Guidelines modified for Straemlyne proposal submission system:

- **1 month (or earlier) before the due date**: initiate the proposal submission process in Streamlyne with a notice of intent to apply to college POC and SRA including the request for proposal

identification number (NSF, NIH) and/or the RFP document. This is an important step that will help the College POC and SRA to manage your proposals. It will allow:
    - preliminary review of needs and sponsor requirements (meeting recommended)
    - set up the timeline in motion and internal checklist/deadlines
    - collaborator outreach and intake requirements (where applicable)
    - set up the budget and Streamlyne document development process including any cost-sharing for consideration of department, college and office of research administration.
- **1 month - 2 weeks before due date:** the budget should be finalized and the approval process should be initiated**.** This includes the department and college approvals, conflict of interest forms, the detailed budget and justification, proposal title, and preliminary specific aims (NIH), proposal summary (NSF), or contract scope of work (SOW). The following checklist should be followed:
    - Proposal budget
        - Internal budget commitments such as cost-sharing should be fully calculated/loaded at this time. Any college specific internal process for index source and approvals should be followed within this timeline.
    - Complete initial proposal details and internal Streamlyne information
    - Complete Streamlyne questionnaires
        - Proposal specific
        - Sponsor specific (as applicable for grants.gov for S2S submission)
    - Complete special review disclosures (as applicable)
        - IRB/human subjects
        - Biosafety
        - Animals
        - Export Controls
        - Conflict of Interest
- **2 weeks - 1 week before the due date:** submit all required internal attachments including:
    - Project Summary/Statement of Work
    - Final Budget
    - Budget Justification
    - For S2S Proposals – Complete additional input of placeholder attachments.
    - Submit in Streamlyne and monitor routing/review by key personnel and department/college administration.
- **72 hours – 24 hours before the submission deadline:** Prepare the final version for submission. The following actions will be managed during this period.
    - All final technical documents/attachments are completed and validated in internal and/or sponsor system(s).
    - Central Office completes final review and coordination with PI and College POC on final proposal review, validation of system requirements and engages in sponsor actions and submission.
    - Central office completes internal data and archiving procedures and coordinates follow-up
- **At least 24 hours before the submission deadline:** The PI should release the final version of the proposal to the SRA office at least 24 hours prior to the deadline for on-time submission.

For a successful submission, it is expected that faculty/PIs will follow up with the designated point-of-contact (ambassadors) for their college in a timely manner so that appropriate planning steps can be managed with respect to the proposal complexity, scope of support, any special needs such as cost-

sharing, and multiple submission volume with the same due date. The following are the respective college point-of-contacts (ambassadors)

NCE: John McCarthy, NCE Director of Research; (973) 596-3247; john.p.mccarthy@njit.edu
NCE: Deidra Slough, Grant Management Specialist, (973)-596-3428; deidra.l.slough@njit.edu
CSLA: Cristo Leon, CSLA Director of Research; (973) 596-6426; cristo.e.yanezleon@njit.edu
CSTR: Felicia Margolies, Project Manager, (973)-596-5377 felicia.h.margolies@njit.edu
YWCC: Sean Andrews, YWCC Director of Research; (973) 596-5352; sean.t.andrews@njit.edu
HCoAD and MTSM: Interim POC: Justin Samolewicz, Director (Pre Award); (973)-596-3145; justin.m.samolewicz@njit.edu**; Iris Pantoja**, Project Manager; 973-596-4483; irp3@njit.edu (on maternity leave)
NJII and T&BD: **Bobby J. Vadasserril**; (973)-596-2941; bobby.j.vadasserril@njit.edu

Faculty and staff having any questions on proposal submission, may contact their college point-of-contacts (ambassadors), and also follow up with **Justin Samolewicz, Director (Pre Award)** 973-596-3145; justin.m.samolewicz@njit.edu; and **Eric Hetherington,** Executive Director, Sponsored Research Programs Administration 973-596-3631; eric.d.hetherington@njit.edu as needed.

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.
