

NJIT Research Newsletter

Issue: ORN-2021-23

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** (with links to sections). The Newsletter is posted on the NJIT Research Website <https://research.njit.edu/funding-opportunities> .

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Special Announcements

Workshop Announcement

NIH SBIR/STTR Funding Success - Fortune Favors the Informed

Trends & Strategies in 2021-22 for Competitive NIH Grant Applications

Jun 22, 2021 10:00 AM

<https://launchbio.org/feature/nih-sbirsttr-funding-success>

Now is the time to apply for SBIR/STTR grant funding from the National Institutes of Health (NIH). They received a 3% funding increase in fiscal year 2021, bringing its total budget to just under \$43 billion. More than 80% of that funding will be awarded through nearly 50,000 competitive grants to more than 300,000 researchers at more than 2,500 for-profit companies, universities, medical schools, , and other research institutions in every state. There is a lot of money available--let's get your startup funded!

It is crucial to understand the program trends that will shape what technologies get funded over the next year. Like most things, COVID-19 has made its mark on many areas of the SBIR/STTR grant program. In this workshop facilitated by Dr. Rupak Doshi, Founder & CEO of OmniSync, you'll learn about the various NIH Institutes & Centers and their funding interest areas. You'll be briefed on the NIH's funding priorities and how to align your technology strategically. Following the workshop, the rest of the week will include opportunities to meet with the OmniSync team to discuss your technology and ways to improve your application.

You may schedule the 1:1 Readiness Assessment by clicking this link

(<https://airtable.com/shrnmbcuJul1D8g1J>).

Facilitator: Rupak Doshi, Founder & CEO, OmniSync

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Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: Biophotonics; Environmental Sustainability; Nanoscale Interactions; Fluid Dynamics; Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII); Predictive Intelligence for Pandemic Prevention Phase I: Development Grants (PIPP Phase I); Division of Chemistry: Disciplinary Research Programs (CHE-DRP); EHR Core Research; Centers for Chemical Innovation (CCI)

NIH: NIA Research and Entrepreneurial Development Immersion (REDI); Entrepreneurship Enhancement Award (R25); High Resolution Mapping of Biomolecules in Brain Cells in Aging and Alzheimer's Disease (R01); BRAIN Initiative: New Technologies and Novel Approaches for Recording and Modulation in the Nervous System (R01); Integration, Dissemination, and Evaluation (BRIDGE) Center for the NIH Bridge to Artificial Intelligence (Bridge2AI) Program (U54); NIH Blueprint MedTech Pilot Award to Accelerate Early-Stage Neurotechnologies; NIH Director's Transformative Research Awards (R01)

Department of Defense/US Army/DARPA/ONR: Defense Sciences Office Office-wide; Redefining Possible; Human-Guided Machine Learning; Research Interests of the Air Force Office of Scientific Research; C4ISR, Information Operations, Cyberspace Operations and Information Technology System Research, Idea Development Award; DOD Hearing Restoration Focused Research Award

Department of Transportation: DDETFP Transportation Fellowship Program; High Priority Program – Innovative Technology Deployment (HP-ITD)

Department of Agriculture: NRCS's Conservation Innovation Grants (CIG) Classic Program; Agriculture and Food Research Initiative - Foundational and Applied Science

Department of Labor: State Apprenticeship Expansion, Equity and Innovation (SAEEI) Grant Program

Department of Commerce/EDA: NIST Public Safety Innovation Accelerator Program – Artificial Intelligence for IoT Information Prize Competition; Oceanic and Atmospheric Research (OAR); FY2021 to FY2023 NOAA Broad Agency Announcement (BAA)

EPA: Improving Community Health through Microbial Source Tracking

Department of Energy: Quantum Horizons: QIS Research and Innovation for Nuclear Science; Assisting Federal Facilities with Energy Conservation Technologies (AFFECT)

[NASA: NASA Innovative Advanced Concepts \(NIAC\) Phase I; ROSES 2021: Instrument Incubator Program; ROSES 2021: Living With a Star Science](#)
[National Endowment of Humanities: Fellowship Programs at Independent Research Institutions](#)
[Private Foundations: Special Funding Program: Israel-US Fund for Clean-Energy Joint Research](#)

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[Recent Research Grant and Contract Awards](#)

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

PI: Treena Arinzeh (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: A Metabolic Strategy Utilizing a Zein Scaffold for Bone Repair
Funding Agency: NIH
Duration: 05/01/21-04/30/22

PI: Trevor Tyson (PI)
Department: Physics
Grant/Contract Project Title: Impact of Nanoscale Structure on Properties of Multiferroic Complex Oxides
Funding Agency: NSF
Duration: 08/01/18-07/31/22

PI: Prateek Shekhar (PI)
Department: School of Applied Engineering and Technology
Grant/Contract Project Title: Collaborative Research: Facilitating Engineering Faculty's Adoption of Evidence-based Instructional Practices
Funding Agency: NSF
Duration: 06/15/21-05/31/24

PI: Andrei Sirenko (PI)
Department: Physics
Grant/Contract Project Title: Non-Reciprocal Effects in Non-Centrosymmetric Magnets: Neutron and Optical Studies
Funding Agency: DOE
Duration: 06/01/19-05/31/22

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[In the News...](#)

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

White House Releases a Regulatory Agenda to Advance Its Priorities: “The [agenda](#) includes regulatory protections to help build an economy that makes it easier for families to break into the middle

class and stay in the middle class; to dismantle persistent and systemic inequities; and to adopt a clean energy future for a healthier, safer, and more just tomorrow,” Sharon Block, acting administrator of the Office of Information and Regulatory Affairs, [wrote](#). It “continues rolling back the obstacles to recovery, equity, and sustainability that the prior administration put in place, such as making it significantly harder for families to challenge discriminatory housing practices and emboldening corporate polluters as they continued to harm people and communities.” Some of the specific goals of the agenda include: reducing lead and man-made chemicals in drinking water, increasing pipeline safety, easing requirements for small businesses to refinance their debt, strengthening protections against discrimination in health programs, reducing greenhouse gas emissions and fortifying the Deferred Action for Childhood Arrivals program. Upcoming regulations that will impact the federal workforce involve the [use of polygraphs](#) in screening job applicants and appointees as well as the establishment of a new pay system for [economists](#). More information is posted on the [GovExecutive website](#).

White House Forms Team to Develop Blueprint for National AI Infrastructure: The White House on Thursday named a team of technical experts to produce a comprehensive, multi-part strategy to extend America’s artificial intelligence edge by delivering computing resources, government-captured data, tools and support to students and researchers across the nation. A dozen members representing public, private and academic sectors make up the new National Artificial Intelligence Research Resource Task Force, which is co-chaired by Office of Science and Technology Policy Assistant Director of AI Lynne Parker and National Science Foundation Deputy Assistant Director Erwin Gianchandani.

This federal advisory committee will craft a roadmap to form a national AI research resource, or NAIRR. That infrastructure would securely connect researchers with assets and government data to drive the development of this crucial evolving technology, which relies on heaps of information.

“America’s economic prosperity hinges on foundational investments in our technological leadership,” OSTP Director Eric Lander [said](#). Officials from the Energy Department, National Institute of Standards and Technology, Google, Stanford University and more are set to serve on the task force. Its roots trace back to a mandate in the [National AI Initiative Act](#) of 2020, but the task force also aligns with the administration’s broader [intent](#) to keep the U.S. at the forefront of technological innovation.

Specifically, the team will provide recommendations for standing and sustaining the NAIRR, “including technical capabilities, governance, administration, assessment and requirements for security, privacy, civil rights and civil liberties,” the announcement noted. Officials [confirmed](#) census, health, transportation and other federal data about Americans could potentially be made accessible to underpin future research. The task force will be responsible for a detailed blueprint and implementation plan due to Congress next year. More information is posted on the [NextGov website](#).

117th Congress Infrastructure & Climate Change Agenda:

DIVISION A: FEDERAL SURFACE TRANSPORTATION PROGRAMS FOR FY22

- Sec. 103: Authorizes an additional \$14.7 billion in contract authority from the highway account above FY21 levels, provides an equal amount of obligation authority to be distributed with these funds, and distributes these amounts according to existing formulas.
- Sec. 104: Authorizes \$1 billion from the mass transit account to bring additional transit stations into compliance with the Americans with Disabilities Act. Authorizes \$1 billion from the mass transit account to increase transit options, including through startup operating expense assistance, in unserved and underserved areas. Authorizes these sums as may be necessary from the general fund to increase the federal share for key projects that demonstrate the need for additional federal investment.
- Sec. 107: Authorizes projects designated by members of Congress for allocation from amounts made available under section 103. Ensures that the Secretary has sufficient flexibility to carry out the projects consistent with the intent of Congress.

DIVISION B: SURFACE TRANSPORTATION REAUTHORIZATION Title I – Federal-Aid Highways

- Sec. 1108: Increases the federal share for projects that use innovative materials, recycled content, processes that reduce greenhouse gas emissions and other pollution, innovative bridge construction technologies, advanced digital construction systems, and work zone safety contingency funds.

Sec. 1112: Adds “construction materials” to the materials covered by Buy America and directs FHWA to carry out research on domestic availability and identify suppliers of Buy America compliant materials to facilitate compliance with these requirements and support domestic jobs.

- Sec. 1201: Revises the NHPP to emphasize state of good repair needs identified in the transportation asset management plan before constructing new highway capacity. This term provides eligibility for resilience investments that are eligible under the PDM program for facilities eligible under NHPP, such as improving culverts and other flood management strategies, integrating of natural infrastructure into roadway design undergrounding, and undergrounding public utilities while undertaking a transportation project. Requires states to consider climate change when preparing their transportation asset management plans.

- Sec. 1202: Establishes a pre-disaster mitigation program which receives \$6.25 billion in apportioned funds for resilience projects identified in vulnerability assessments. Funds can also be used to relocate or construct alternatives to transportation infrastructure that is repeatedly damaged by extreme weather events, to address current and future vulnerabilities to evacuation routes or for disaster recovery, training, and telework programs. Requires projects that encroach within the limits of a flood-prone area to be designed and constructed to be resilient to current and projected changes in flooding, taking into consideration anticipated changes due to climate change and planned land use changes.

Title V – Innovation

- Sec. 5001: Authorizes \$2.2 billion in contract authority for FY23 through FY26 for research programs.

- Sec. 5101: Increases funding to \$144 million for FY23 through FY26 for the Highway Research and Development Program and removes set-asides that previously took funding away from critical research activities. Adds greenhouse gas emissions reduction to the objectives of the Highway Research and Development Program. Directs DOT to develop modeling tools and databases to track highway assets, traffic flows, and long-distance network connectivity to better inform planning for both passenger and freight travel. Authorizes FHWA to obtain and develop datasets and tools that enable states, MPOs, and others to better evaluate performance management and accessibility to jobs and services.

The United States Innovation and Competition Act: The United States Innovation and Competition Act is comprised of bills reported out of the committees on Commerce, Science, and Transportation; Foreign Relations; Homeland Security and Governmental Affairs; Banking, Housing, and Urban Affairs; Health, Education, Labor, and Pensions; and the Judiciary. It is intended to help address the rising military, geopolitical, and economic competition from China. Notable bills in the package include versions of the Endless Frontier [Act](#), the Strategic Competition [Act](#), and the Meeting the China Challenge [Act](#) of 2021.

Floor Situation: The Senate [voted](#) 86-11 in favor of the motion to invoke cloture on the motion to proceed to S.1260, the Endless Frontier Act. Majority Leader Schumer filed the [text](#) of the United States Innovation and Competition Act as an amendment in the nature of a substitute for the EFA. The Senate is expected to consider the legislation over the next two weeks.

Executive Summary: The USICA establishes a Directorate of Technology and Innovation at the National Science Foundation. It authorizes \$81 billion for NSF, including \$29 billion over five years for the new directorate. It directs the Department of Commerce to designate regional technology hubs across the country, and authorizes \$10 billion over five years for these hubs. The bill appropriates \$52.7 billion for incentivizing domestic semiconductor fabrication and \$1.5 billion for 5G innovation. It takes steps to counter the Chinese Communist Party by addressing China’s political influence in universities, countering

predatory economic practices like IP theft, and expanding and strengthening our alliances. The bill requires sanctions against foreign entities or people that the president identifies each year as having supported or engaged in cyberattacks or otherwise undermined U.S. cybersecurity on China's behalf. The S.1260 Act is posted on the website https://www.rpc.senate.gov/legislative-notice/s1260_the-united-states-innovation-and-competition-act.

President Biden's Fiscal Year 2022 Budget Proposal: President FY2022 as presented includes (this report is provided by WSW):

U.S. Department of Health and Human Services:

Topline: \$131.8 billion in discretionary funding, a \$25 billion or 23.5% increase from the FY21 level, and \$1.5 trillion in mandatory funding.

Office of the National Coordinator for Health Information Technology (ONC): \$86.6 million

National Institutes of Health: \$50.5 billion, a \$9 billion increase over FY21

- **New Advanced Research Projects Agency for Health (ARPA-H):** \$6.5 billion to establish ARPA-H, a bold new entity within NIH that will speed transformational innovation in health research with an initial focus on cancer, diabetes and Alzheimer's.

U.S. Department of Energy (DOE):

Topline: \$46.1 billion, a \$4.3 billion or 10.2% increase from FY21

Office of Science: \$7.4 billion, an increase of more than \$400 million over the FY21 level, to support the foundational research that will bring us the next generation of energy discoveries.

- The budget request prioritizes investments in climate science and fundamental energy research, including a nearly 10% increase in funding for climate and clean energy focused research. These investments coupled with investments in applied energy programs would leverage the tremendous innovation capacity of the National Laboratories, universities, and entrepreneurs to transform America's power, transportation, buildings, and industrial sectors to achieve a net-zero emissions economy by 2050.
- Build on and advance the Department's global leadership in critical technology areas such as quantum science, advanced supercomputing, and artificial intelligence.
- With an 'all R&D community' approach, **the new Energy Earthshots initiative** will drive integrated program development across DOE's science and applied energy offices and ARPA-E to advance carbon-neutral fuels such as hydrogen, new grid modernization technologies, and revolutionize carbon management.
- **New ARPA-Climate** will be critical to advancing climate technology solutions for adaptation, resilience and non-energy emissions mitigation.

Office of Energy Efficiency and Renewable Energy (EERE): \$4.7 billion a 65% increase from FY21.

National Science Foundation (NSF): Topline: \$10.2 billion, a \$1.7 billion or 20% increase over the FY21 level

New Directorate for Technology, Innovation, and Partnerships (TIP): The Directorate would work with programs across the Agency and with other existing Federal and non-Federal entities to expedite technology development in emerging areas that are crucial for U.S. technological leadership, including artificial intelligence, high performance computing, disaster response and resilience, quantum information systems, robotics, advanced communications technologies, biotechnology, and cybersecurity.

Climate Science and Sustainability Research: \$1.2 billion.

Artificial Intelligence: \$734.41 million.

Quantum Information Science (QIS): \$260 million.

Advanced Manufacturing: \$418.51 million.

NSF Innovation Corps (I-Corps™): \$40 million.

Major Research Equipment and Facilities Construction (MREFC): \$249 million, an increase of \$8 million.

Fundamental Research and Development: \$9.43 billion, an increase of \$1.55 billion above the FY21 level, to support research across the spectrum of science, engineering, and technology.

- Biological Sciences: \$948.51 million
- Computer and Information Science and Engineering: \$1.1 billion
- Engineering: \$916.79 million
- Geosciences: \$1.2 billion
- Mathematics and Physical Sciences: 41.7 billion
- Social, Behavioral, and Economic Sciences: \$319.66 million
- Integrative Activities: \$504.9 million

Education and Human Resources (EHR): \$1.3 billion

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[Webinar and Events](#)

Event: DEB Virtual Office Hour: How to Write a Great NSF Proposal

Sponsor: NSF

When: June 14, 2021 1:00 PM to 2:00 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302749&org=NSF

Brief Description: Join us Monday, June 14 from 1-2PM Eastern Time for DEB's next Virtual Office Hour. Program Officers will provide insight on how to write a great proposal. Representatives from each of the four DEB core programs will be available for questions. To participate, please use the registration link below. Upcoming DEB Virtual Office Hours are announced ahead of time on DEBrief, [so we suggest you also sign up for blog notifications](#).

To Join the Webinar: [REGISTER HERE](#)

URI Webinar: Research Computing and Cybersecurity

Sponsor: NJIT Office of Research

When: June 17, 2021; 2.00 PM – 3.00 PM

Moderator: Kamalika Sandell, Vice Provost and Chief Information Officer

Panelists (invited):

- Forough Ghahramani, AVP, Edge
- Jay Boisseau, Strategist, Dell
- Rick Carbonaro President, TPS Cyber

Brief Description: This session will provide information about Advanced Research Computing resources at NJIT and how to leverage cloud computing assets. Research data is sensitive and researchers today need to attend to security and compliance needs for specialized research related to Defense, Security, and Health studies. The session will discuss security needs for handling research data so that it can be protected against cyberattacks without hindering core research activities.

To Join the WebEx Webinar: Attendees should log-in using the link:

<https://njit.webex.com/njit/j.php?MTID=m59de162390129d440e39dffaabea7738>

Event: DMS Virtual Office Hours

Sponsor: NSF

When: June 18, 2021 2:00 PM to 3:00 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302839&org=NSF

Brief Description: The Division of Mathematical Sciences (DMS) is hosting virtual office hours to share information about NSF's current operations and to provide guidance to the mathematical sciences community. All members of the mathematical sciences research community interested in the work of DMS are welcome to attend.

Virtual office hours are held at roughly monthly intervals; topics vary. The event will be in the form of a webinar, starting with a brief presentation of selected current topics, with DMS program directors available to answer questions from the community.

To Join the Webinar: Participants should register (and may do so in advance) at the web page https://nsf.zoomgov.com/webinar/register/WN_WWhciTBITDWVGfhsenzjpw

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[Grant Opportunities](#)

[National Science Foundation](#)

Grant Program: Biophotonics

Agency: National Science Foundation NSF PD 21-7236

RFP Website:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505719&org=NSF&sel_org=NSF&from=fund

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

The goal of the **Biophotonics** program is to explore the research frontiers in photonics principles, engineering and technology that are relevant for critical problems in fields of medicine, biology and biotechnology. Fundamental engineering research and innovation in photonics is required to lay the foundations for new technologies beyond those that are mature and ready for application in medical diagnostics and therapies. Advances are needed in nanophotonics, optogenetics, contrast and targeting agents, ultra-thin probes, wide field imaging, and rapid biomarker screening. Low cost and minimally invasive medical diagnostics and therapies are key motivating application goals.

Research topics in this program include:

- **Imaging in the second near infrared window:** Research that advances medical applications of biophotonics in the second near-infrared window (NIR-II: 1,000-1,700 nm) in which biological tissues are transparent up to several centimeters in depth, making this spectral window ideal for deep tissue imaging.
- **Macromolecule markers:** Innovative methods for labeling of macromolecules. Novel compositions of matter. Methods of fabrication of multicolor probes that could be used for marking and detection of specific pathological cells. Pushing the envelope of optical sensing to the limits of detection, resolution, and identification.
- **Low coherence sensing at the nanoscale:** Low coherence enhanced backscattering (LEBS). N-dimensional elastic light scattering. Angle-resolved low coherence interferometry for early cancer detection (dysplasia).

- **Neurophotronics:** Studies of photon activation of neurons at the interface of nanomaterials attached to cells. Development and application of biocompatible photonic tools such as parallel interfaces and interconnects for communicating and control of neural networks.
- **Microphotronics and nanophotonics:** Development and application of novel nanoparticle fluorescent quantum-dots. Sensitive, multiplexed, high-throughput characterization of macromolecular properties of cells. Nanomaterials and nanodevices for biomedicine.
- **Optogenetics:** Novel research in employing light-activated channels and enzymes for manipulation of neural activity with temporal precision. Utilizing nanophotonics, nanofibers, and genetic techniques for mapping and studying in real-time physiological processes in organs such as the brain and heart.

Awards: Standard Grant; Various Funding Programs

Letters of Intent: Not Required

Full Proposal Submission Deadline: Full Proposal Accepted Anytime

Contacts: Leon Esterowitz lesterow@nsf.gov (703) 292-7942

Steven M. Zehnder szehnder@nsf.gov (703) 292-7014

Grant Program: Environmental Sustainability

Agency: National Science Foundation NSF PD 21-7643

RFP Website:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505695&org=NSF&sel_org=NSF&from=fund

Brief Description: The **Environmental Sustainability** program is part of the **Environmental Engineering and Sustainability** cluster together with 1) the **Environmental Engineering** program and 2) the **Nanoscale Interactions** program.

The goal of the **Environmental Sustainability** program is to promote sustainable engineered systems that support human well-being and that are also compatible with sustaining natural (environmental) systems. These systems provide ecological services vital for human survival. Research efforts supported by the program typically consider long time horizons and may incorporate contributions from the social sciences and ethics. The program supports engineering research that seeks to balance society's need to provide ecological protection and maintain stable economic conditions.

There are four principal general research areas that are supported:

- **Industrial ecology:** Topics of interest include advancements in modeling such as life cycle assessment, materials flow analysis, net energy analysis, input/output economic models, and novel metrics for measuring sustainable systems. Innovations in industrial ecology are encouraged.
- **Green engineering:** Research is encouraged to advance the sustainability of manufacturing processes, green buildings, and infrastructure. Many programs in the Engineering Directorate support research in environmentally benign manufacturing or chemical processes. The Environmental Sustainability program supports research that would affect more than one chemical or manufacturing process or that takes a systems or holistic approach to green engineering for infrastructure or green buildings. Improvements in distribution and collection systems that will advance smart growth strategies and ameliorate effects of growth are research areas that are supported by Environmental Sustainability. Innovations in management of storm water, recycling and reuse of drinking water, and other green engineering techniques to support sustainability may also be fruitful areas for research.
- **Ecological engineering:** Proposals should focus on the engineering aspects of restoring ecological function to natural systems. Engineering research in the enhancement of natural capital to foster sustainable development is encouraged.

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

Awards: Standard Grant; Various Funding Programs

Letters of Intent: Not Required

Full Proposal Submission Deadline: Full Proposal Accepted Anytime

Contacts: Bruce K. Hamilton bhamilto@nsf.gov (703) 292-7066

Grant Program: Nanoscale Interactions

Agency: National Science Foundation PD 21-1179

RFP Website:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505696&org=NSF&sel_org=NSF&from=fund

Brief Description: The **Nanoscale Interactions** program is part of the **Environmental Engineering and Sustainability** cluster, which also includes: 1) the **Environmental Engineering** program; and 2) the **Environmental Sustainability** program.

The goal of the **Nanoscale Interactions** program is to support research to advance fundamental and quantitative understanding of the interactions of nanomaterials and nanosystems with biological and environmental media.

Materials of interest include one- to three-dimensional nanostructures, heterogeneous nano-bio hybrid assemblies, dendritic and micelle structures, quantum dots, and other nanoparticles. Such nanomaterials and systems frequently exhibit novel physical, chemical, photonic, electronic, and biological behavior as compared to the bulk scale. Collaborative and interdisciplinary proposals are encouraged.

Research areas supported by the program include:

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

The Nanoscale Interactions program will support exploratory research projects on nanoscale interactions of quantum effects which explain macroscopic changes and physiological and metabolic processes; investigate quantum vibration and electron spin to elucidate nano phenomena and produce quantitative data and evidence of quantum effects.

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

Awards: Standard Grant; Various Funding Programs

Letters of Intent: Not Required

Full Proposal Submission Deadline: Full Proposal Accepted Anytime

Contacts: Nora F. Savage NOSAVAGE@nsf.gov (703) 292-7949

Grant Program: Fluid Dynamics**Agency: National Science Foundation PD 21-1443****RFP Website:**https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505698&org=NSF&sel_org=NSF&from=fund

Brief Description: The **Fluid Dynamics** program is part of the Transport Phenomena cluster, which also includes 1) the **Combustion and Fire Systems** program; 2) the **Particulate and Multiphase Processes** program; and 3) the **Thermal Transport Processes** program.

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

Major areas of interest and activity in the program include:

- **Turbulence and transition:** High Reynolds number experiments; large eddy simulation; direct numerical simulation; transition to turbulence; 3-D boundary layers; separated flows; multi-phase turbulent flows; flow control and drag reduction. A new area of emphasis is high speed boundary layer transition and turbulence; the focus would be for flows at Mach numbers greater than 5 to understand cross-mode interactions leading to boundary layer transition and the ensuing developing and fully developed turbulent boundary layer flows. Combined experiments and simulations are encouraged.
- **Bio-fluid physics:** Bio-inspired flows; biological flows with emphasis on flow physics.
- **Non-Newtonian fluid mechanics:** Viscoelastic flows; solutions of macro-molecules.
- **Microfluidics and nanofluidics:** Micro-and nano-scale flow physics.
- **Wind and ocean energy harvesting:** Focused on fundamental fluid dynamics associated with renewal energy.
- **Fluid-structure interactions:** NSF interests are in general FSI applications across the low- to high-Reynolds number range. In addition an NSF-AFOSR (Air Force Office of Scientific Research) joint funding area is the theory, modeling and/or experiments for hypersonic applications. Proposals will be jointly reviewed by NSF and AFOSR using the NSF merit review process. Actual funding format and agency split for an award (depending on availability of funds) will be determined after the proposal selection process. The AFOSR program that participates in this initiative is the Aerothermodynamics program (program officer: [Dr. Sarah Popkin](#)).
- **Canonical configurations:** Experimental research is encouraged to develop spatiotemporally resolved databases for canonical configurations to either confirm historical results or to provide data in an unexplored parameter region. Fidelity and completeness for theoretical/computational validation are key attributes of the proposed experimental data.
- **Artificial intelligence (AI)/machine learning:** Innovative AI ideas related to the use of machine learning and other AI approaches in fluid dynamics research to model and control the flows are encouraged. Verifying new models with canonical configurations, when appropriate, is encouraged for the **Computational and Data-Enabled Science & Engineering (CDS&E)** program.
- **Instrumentation and Flow Diagnostics:** Instrument development for time-space resolved measurements; shear stress sensors; novel flow imaging; and velocimetry.

Awards: Standard Grant; Various Funding Programs

Letters of Intent: Not Required

Full Proposal Submission Deadline: Full Proposal Accepted Anytime

Contacts: Ronald D. Joslin rjoslin@nsf.gov (703) 292-7030

Shahab Shojaei-Zadeh sshojaei@nsf.gov (703) 292-8045

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

Agency: National Science Foundation NSF 21-591

RFP Website: <https://www.nsf.gov/pubs/2021/nsf21591/nsf21591.htm>

Brief Description: The NSF Directorate for Computer and Information Science and Engineering (CISE) seeks to award grants intended to support research independence among early-career academicians who specifically lack access to adequate organizational or other resources. It is expected that funds obtained through this program will be used to support untenured faculty or research scientists (or equivalent) in their first three years in a primary academic position after the PhD, but not more than six years after completion of their PhD for proposals submitted in 2021, and not more than five years after completion of their PhD for proposals submitted after 2021. Applicants for this program may not yet have received any other grants or contracts in the PI role from any department, agency, or institution of the federal government, including from the CAREER program or any other program, post-PhD, regardless of the size of the grant or contract, with certain exceptions as noted below. Serving as co-PI, Senior Personnel, Postdoctoral Fellow, or other Fellow does not count against this eligibility rule.

Importantly, the CRII program seeks to provide essential resources to enable early-career PIs to launch their research careers. For the purposes of this program, CISE defines "essential resources" as sufficient funds for 48 months of graduate student support. Faculty at undergraduate and two-year institutions may use funds to support undergraduate students, and may optionally use the additional RUI designation (which requires inclusion of a RUI Certification and RUI Impact Statement) -- see https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5518 for additional information. In addition, submissions from all institutions may use funds for PI salary, postdoctoral scholars, travel, and/or research equipment.

Awards: Standard Grant; Anticipated Funding Amount: \$10,000,000

Letters of Intent: Not Required

Full Proposal Submission Deadline: September 20, 2021

Contacts: Jeremy J. Epstein, telephone: (703) 292-8338, email: jepstein@nsf.gov

- Ephraim P. Glinert, Program Director, IIS, telephone: (703) 292-8930, email: eglinert@nsf.gov
- Almadena Y. Chtchelkanova, Program Director, CCF, telephone: (703) 292-8910, email: achtchel@nsf.gov

Grant Program: Predictive Intelligence for Pandemic Prevention Phase I: Development Grants (PIPP Phase I)

Agency: National Science Foundation NSF 21-590

RFP Website: <https://www.nsf.gov/pubs/2021/nsf21590/nsf21590.htm>

Brief Description: This solicitation is for Development Grants as part of NSF's new Predictive Intelligence for Pandemic Prevention (PIPP) initiative. This initiative focuses on fundamental research and capabilities needed to **tackle grand challenges in infectious disease pandemics through prediction and prevention**. NSF anticipates releasing a Phase II Center Grants solicitation around 2023. Note that submission or award of a Development Grant is not required to participate in the anticipated PIPP Phase II Center Grants competition.

The PIPP Phase I initiative intends to support planning activities encompassing (1) articulation of a grand challenge centered around a critical and broad question in pandemic predictive intelligence; (2) proposals of novel conceptual research and technology developments that aim to advance state-of-the-art forecasting, real-time monitoring, mitigation, and prevention of the spread of pathogens; and (3) multidisciplinary team formation. *Successful Phase I proposals must identify an innovative*

interdisciplinary grand challenge that engages integrated computational, biological, engineering, and social/behavioral approaches to formulate and solve critical problems relating to predictive intelligence for pandemic prevention. PIs of Phase I Development Grants are strongly encouraged to develop research and technical approaches that start to address critical aspects of the identified grand challenge. NSF's PIPP activities place great emphasis on high-risk/high-payoff convergent research that has the potential for large societal impact. To that end, prospective principal investigators (PIs) must develop teams and proposals that work across scientific, disciplinary, geographic, and organizational divides, push conceptual boundaries, and build new theoretical framings of the understanding of pandemic predictive intelligence.

The Directorates for Biological Sciences (BIO), Computer Information Science and Engineering (CISE), Engineering (ENG), and Social, Behavioral and Economic Sciences (SBE), are jointly collaborating to support the PIPP Phase I activities. Involvement of and collaboration with other research communities with significant effort in related spaces is highly encouraged.

Awards: Standard Grant or Continuing Grant; Anticipated Funding Amount: \$25,000,000

Letters of Intent: Not Required

Full Proposal Submission Deadline: October 01, 2021

Contacts: Mitra Basu, telephone: (703) 292-8649, email: PIPP@nsf.gov

- Katharina Dittmar, telephone: (703) 292-7799, email: PIPP@nsf.gov
- John Zhang, telephone: (703) 292-8111, email: PIPP@nsf.gov

Grant Program: Division of Chemistry: Disciplinary Research Programs (CHE-DRP)

Agency: National Science Foundation NSF 21-589

RFP Website: <https://www.nsf.gov/pubs/2021/nsf21589/nsf21589.htm>

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

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

Exceptions:

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

Awards: Standard Grant or Continuing Grant; Anticipated Funding Amount: \$155,000,000

Letters of Intent: Not Required

Full Proposal Submission Deadline: September 01, 2021 - September 30, 2021

Contacts: For CLP: Catalina Achim, telephone: (703) 292-2048, email: cachim@nsf.gov

- For CSDM-A: John M. Papanikolas, telephone: (703) 292-8840, email: jpapanik@nsf.gov
 - For CMI: Kelsey D. Cook, telephone: (703) 292-7490, email: kcook@nsf.gov
-

Grant Program: EHR Core Research (ECR:Core)

Agency: National Science Foundation NSF 21-588

RFP Website: <https://www.nsf.gov/pubs/2021/nsf21588/nsf21588.htm>

Brief Description: The EHR Core Research (ECR) program offers this ECR:Core solicitation and invites proposals for fundamental research (curiosity-driven basic research and use-inspired basic research) that contributes to the general, explanatory knowledge that underlies STEM education in one or more of the three broadly conceived Research Areas: **Research on STEM Learning and Learning Environments, Research on Broadening Participation in STEM fields, and Research on STEM Workforce Development.** Within this framework, the ECR program supports a wide range of fundamental STEM education research activities, aimed at learners of all groups and ages in formal and informal settings.

Fundamental research generates knowledge and understanding with the potential for broad relevance. The potential implications of ECR fundamental research for improving STEM education practice may be indirect and long-term rather than direct and immediate. Moreover, whether they include basic or use-inspired basic research, all successful ECR:Core proposals focus on the advancement or refinement of foundational knowledge for STEM education.

Awards: Standard Grant or Continuing Grant; Anticipated Funding Amount: \$35,000,000

The amount of funding and duration requested in proposals submitted to the ECR: Core solicitation should align with the maturity of the proposed work and the size and scope of the empirical effort. The solicitation has three levels of funding with a range of budget sizes, and proposals may request a duration of 3 to 5 years for any level: (1) **Level I proposals** may request up to \$500,000; (2) **Level II proposals** may request up to \$1,500,000; (3) **Level III proposals** may request up to \$2,500,000. **All proposals should justify the level of funding and duration in the project description.**

Letters of Intent: Not Required

Full Proposal Submission Deadline: October 07, 2021

Contacts: Address questions to the program, telephone: (703)292-2333, email: ECR@nsf.gov

Grant Program: Centers for Chemical Innovation (CCI)

Phase I Awards and New/Renewal Phase II Centers

Agency: National Science Foundation NSF 21-587

RFP Website: <https://www.nsf.gov/pubs/2021/nsf21587/nsf21587.htm>

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

The CCI Program is a two-phase program. Both phases are described in this solicitation. Phase I CCIs receive significant resources to develop the science, management and broader impacts of a major research

center before requesting Phase II funding. Satisfactory progress in Phase I is required for Phase II applications; Phase I proposals funded in FY 2022 will seek Phase II funding in FY 2025.

The FY 2022 Phase I CCI competition is open to projects in all fields supported by the Division of Chemistry, and must have scientific focus and the potential for transformative impact in chemistry. The NSF Division of Chemistry particularly encourages fundamental chemistry projects aligned with articulated budget priorities, including Advanced Manufacturing, Artificial Intelligence, Biotechnology, Climate Research and Sustainability, and Quantum Information Science. More information on all of these is available in Section IX of this Program Solicitation.

Awards: Standard Grant or Continuing Grant or Cooperative Agreement; Anticipated Funding Amount: \$9,400,000

Letters of Intent: Not Required

Full Proposal Submission Deadline:

- **Preliminary Proposal Due Date(s) (*required*):** August 23, 2021
- **Full Proposal Deadline(s):** October 19, 2021

Phase II Full Proposals: February 22, 2022

Phase I Full Proposals, by invitation only

Contacts: Katharine J. Covert, telephone: (703) 292-4950, email: kcovert@nsf.gov

- Colby A. Foss, telephone: (703) 292-5327, email: cfoss@nsf.gov
- Lin He, telephone: (703) 292-4956, email: lhe@nsf.gov

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National Institutes of Health

Grant Program: NIA Research and Entrepreneurial Development Immersion (REDI): Entrepreneurship Enhancement Award (R25 Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-AG-22-003

Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-AG-22-003.html>

Companion Funding Opportunity:

[RFA-AG-22-004](#) - NIA REDI Mentored Entrepreneurial Career Development Award

[RFA-AG-22-007](#) - REDI Small Business Innovation Research (SBIR) Entrepreneurial Transition Grant

[RFA-AG-22-014](#) - REDI Small Business Technology Transfer (STTR) Entrepreneurial Transition Grant

Brief Description: To boost the number of Ph.D.-trained scientists prepared and ready for the multitude of career options available, NIA is seeking innovation-focused programs that are geared towards imparting a broad set of skills and knowledge required for a career in translational sciences and entrepreneurship. This skillset and knowledge base include scientific communication; an understanding of the intellectual property process and landscape; regulatory and reimbursement pathway knowledge; the ability to identify unmet needs within markets and define value propositions; and a clear understanding of the biomedical development path, financing sources, and challenges. The participants should receive structured education wherein translational aging and Alzheimer's disease and Alzheimer disease-related dementias (AD/ADRD) research is combined with entrepreneurship – the overarching goal of the program being commercialization of aging and AD/ADRD-focused ideas and concepts from the laboratory while training the fellow in entrepreneurship and business development. The training in experimental research is expected to be supplemented with seminars, invited lectures, and networking with industry. The development of research education programs through this FOA will address the need for an increased number of scientists that possess the broad skill-set required for initial success in non-research positions

and for some of the translational and non-research activities that are now a part of many research faculty positions.

Award: Application budgets should not exceed \$150,000 in direct costs per year and need to reflect the actual needs of the proposed project.

Letter of Intent: September 4, 2021

Proposal Deadline: October 4, 2021.

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

Contact: Saroj Regmi, Ph.D., National Institute on Aging (NIA); Phone: 301-480-8964; Email: saroj.regmi@nih.gov

Grant Program: High Resolution Mapping of Biomolecules in Brain Cells in Aging and Alzheimer's Disease (R01 Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-AG-22-019

Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-AG-22-019.html>

Brief Description: This FOA promotes the development of brain cell type and regional 3D representations or atlases of biomolecules that change in typical brain aging and in AD using interdisciplinary approaches and mass spectrometry (MS) imaging technology.

Areas of research interest and opportunity include, but are not limited to, the following:

- Synthesizing multiparameter and mass spectrometry images into 3D biomolecular brain maps to understand the temporal and spatial relationship between early changes in key AD biochemical hallmarks and alterations of inflammatory, lipid, energy metabolite, and synaptic molecules.
- Defining the roles of various AD risk genes, in particular different APOE isoforms, in regulating 3D brain regional and cell type specific lipid distribution and signaling networks during typical and pathological brain aging.
- Establishing a brain small molecule 3D atlas to understand the alteration, transportation, and distribution of small molecules, such ATP/ADP, NADPH/NAD and GSH, in regulating oxidative stress and brain energy metabolism during typical aging and AD.
- Developing computational and analytical tools to integrate MS imaging and single-cell 'omic measurements of brain tissue into "multiparameter" images with anatomical information.
- Optimizing high-throughput single-cell imaging mass spectrometry and other imaging techniques for mapping and disease staging of normal and AD brains.

Award: Application budgets need to reflect the actual needs of the proposed project and should be limited to no more than \$500,000 in direct costs per year.

Letter of Intent: September 28, 2021

Proposal Deadline: October 28, 2021

Contact: J. Austin Yang, Ph.D.; National Institute on Aging (NIA); Telephone: 301-496-9350, Email: austin.yang@nih.gov

Grant Program: BRAIN Initiative: New Technologies and Novel Approaches for Recording and Modulation in the Nervous System (R01 Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-NS-21-026

Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-21-026.html>

Brief Description: This FOA is related to the recommendations in section III of the BRAIN 2025 Report, with the goal to 'produce a dynamic picture of the functioning brain by developing and applying improved methods for large-scale monitoring of neural activity'. Towards this end, the report calls for accelerated development of new and improved electrodes for recording, new and improved electrical and chemical optical sensors of neural activity, and new and improved instruments for optical monitoring of neural activity. These new technologies and approaches will provide unprecedented opportunities for exploring how the nervous system encodes, processes, utilizes, stores, and retrieves vast quantities of information. A better understanding of this dynamic neural activity will enable researchers to seek new ways to diagnose, treat, and prevent brain disorders. This FOA seeks applications to conduct proof-of-concept development and testing of novel technologies and approaches for recording and modulation of cells and networks, to enable transformative understanding of dynamic signaling in the central nervous system. Applications that seek to integrate multiple technical and experimental approaches are encouraged.

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

Letter of Intent: 60 days prior to the receipt date.

Proposal Deadline: October 29, 2021

Contact: Edmund (Ned) Talley, PhD, Sahana N. Kukke, PhD, National Institutes of Neurological Disorders and Stroke (NINDS), Telephone: 301-496-1917, 301-496-1447
Email: BRAIN-FOAs@nih.gov

Grant Program: Integration, Dissemination, and Evaluation (BRIDGE) Center for the NIH Bridge to Artificial Intelligence (Bridge2AI) Program (U54 Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-RM-21-023

Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-RM-21-023.html>

Brief Description: The BRIDGE Center will be responsible for integrating activities and knowledge across Data Generation Projects, disseminating products, best-practices, and training materials/activities, and evaluating all aspects of the Bridge2AI program with input from external stakeholder communities. The BRIDGE Center will combine cores of expertise in administration, team science, ethics, standards, tools optimization, and skills and workforce development to harmonize the data generated across all the Bridge2AI Grand Challenges. The BRIDGE Center cores must be positioned to be well-informed of the changing landscape of ethical principles, standards, AI/ML model requirements, automated software tools, and skills and workforce development methods. Each core will work across relevant components of the Data Generation projects to facilitate interdisciplinary team science and to create cross-cutting products, such as workflow and practice analyses, standards harmonization, ethical AI/ML best-practices, community skills development activities, and workforce development opportunities. The BRIDGE Center should be interdisciplinary (biomedical science, computer science, engineering, behavioral and social science, team science, and other fields) to effectively integrate activities of the Bridge2AI Program across funded Data Generation Projects.

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

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

Proposal Deadline: August 20, 2021

Contact: Shurjo K. Sen, Ph.D., National Human Genome Research Institute (NHGRI) Telephone: 301-827-7028, Email: bridge2ai@od.nih.gov

Grant Program: NIH Blueprint MedTech Pilot Award to Accelerate Early-Stage Neurotechnologies

Agency: NIH-NIBIB-POCTRN CIMIT

Website: <https://www.pocotr.org/blueprint-medtech-pilot>

Brief Description: In support of the Blueprint MedTech Pilot, the Point of Care Technology Research Center (POCTRN) at CIMIT seeks groundbreaking collaborative research projects in the early stages of translation to improve the diagnosis and treatment of disorders of the nervous system. Applications must present potentially transformative solutions to unmet needs with an ultimate goal of improving healthcare outcomes. If successful, projects should be viable candidates for commercial development. We are seeking proposals from academic and industry applicants who have innovative early-stage technologies that aim to improve the diagnosis and/or treatment of disorders of the nervous system.

Awardees will also have the unique opportunity to work directly with mentors experienced in commercializing neurotech devices to help address project related business, regulatory, clinical, and technical issues.

Award: Awards up to \$100K are available to the most promising and innovative neurotechnologies to help support their development journey toward commercialization.

Letter of Intent: Pre-Proposals are required.

Proposal Deadline: Pre-proposals are due no later than: June 21, 2021

Contact: Please contact Blueprint-MedTech@nih.gov if you have any questions about the program.

Grant Program: NIH Director's Transformative Research Awards (R01 Clinical Trial Optional)

Agency: National Institutes of Health RFA-RM-21-017

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-RM-21-017.html>

Brief Description: The [NIH Director's Transformative Research Award](#) Program supports collaborative investigative teams or individual scientists who propose unusually innovative research projects, which, if successful, would have a major impact in a broad area of relevance to the NIH. To be considered transformative, projects must have the potential to create or overturn fundamental scientific paradigms through novel concepts or perspectives, transform the way research is conducted through the development of novel tools or technologies, or lead to major improvements in health through the development of highly innovative diagnostic, therapeutic, or preventive strategies.

Several key features of this FOA are designed to emphasize to applicants and peer reviewers that Transformative Research applications are very different from conventional, investigator-initiated research applications. The Transformative Research application focuses on the importance of the problem, the novelty of the hypothesis and/or the proposed methodology, and the magnitude of the potential impact rather than on preliminary data or experimental details. Reviewers will be instructed to emphasize the significance and innovation of the application in their evaluations. Applicants and reviewers should keep the goal of the Transformative Research Award initiative in mind throughout the process– to solicit and fund unusually innovative and potentially transformative research.

Awards: Application budgets are not limited but must be commensurate with the scope of the proposed research.

Letter of Intent: Not Applicable

Proposal Submission Deadline: September 01, 2021

All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Contact: Ravi Basavappa, Ph.D.; Office of the Director (OD); Telephone: 301-435-7204
Email: Transformative_Awards@mail.nih.gov

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

Grant Program: Defense Sciences Office Office-wide

Agency: Department of Defense DARPA HR001121S0032

RFP Website: <https://sam.gov/opp/f08ce40db929467ab7a8cdac02345b70/view>

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 or studies and analysis proposals that address one or more of the following technical thrust areas: (1) Frontiers in Math, Computation and Design, (2) Limits of Sensing and Sensors, (3) Complex Social Systems, and (4) Anticipating Surprise. Each of these thrust areas 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: DARPA anticipates multiple awards.

Letter of Intent: Please see below.

Proposal Submission Deadline: Executive Summary Due Date and Time: Executive Summaries may be submitted on a rolling basis until Executive Summary Due Date: June 10, 2022, 4:00 p.m. o Proposal Abstract Due Date and Time: Abstracts may be submitted on a rolling basis until June 10, 2022, 4:00 p.m. o FAQ Submission Deadline: June 2, 2022, 4:00 p.m. See Section VIII.A. o Full Proposal Due Date and Time: Proposals may be submitted on a rolling basis until June 10, 2022, 4:00 p.m.

Contact: Technical POC: Phil Root, Deputy Director, DARPA/DSO o BAA Email: HR001121S0032@darpa.mil

Grant Program: Redefining Possible

Agency: Department of Defense DARPA HR001121S0029

RFP Website: <https://sam.gov/opp/7728a31252544c5da3083c3533c8d50b/view>

Brief Description: The Tactical Technology Office (TTO) of the Defense Advanced Research Projects Agency (DARPA) is soliciting executive summaries, proposal abstracts, and proposals for applied research, advanced technology development, platform demonstrations, or systems studies that aim to redefine the future of warfighting across four domains: Air, Ground, Maritime, and Space.

The mission of the Tactical Technology Office (TTO) is to redefine access and delivery of effects to every domain in the battlespace: space, air, ground, sea, and undersea in support of national security policy. This includes both platforms as well as the enabling support elements for delivering effects, such as unit-level autonomy or human-machine collaboration. TTO accomplishes this mission by placing bold bets on developing new and novel system technologies and conducting platform demonstrations at a credible scale in realistic, operationally relevant conditions to support technology transition.

Awards: Multiple awards are anticipated. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds. Initial awards are anticipated to be for less than \$1 million and less than 18 months duration, although options that follow a base effort may also be proposed.

Letter of Intent: Please see below.

Proposal Submission Deadline: Closing Date and Time: 4 PM Eastern Time on June 10, 2022

Contact: The BAA Coordinator for this effort can be reached via: HR001121S0029@darpa.mil

Grant Program: Human-Guided Machine Learning

Agency: Department of Defense Dept. of the Army – USAMRAA W911NF-17-S-0003-SN-MACHINE-LEARNING

RFP Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=334124>

Brief Description: The research goals in human-guided machine learning are to integrate empirical and theoretical efforts and generating novel concepts and approaches for humans to influence and guide the evolving behavior of intelligent technologies with the goal of effectively solving complex problems under variable resource and time constraints. We generally characterize the complex problems as more ambiguously structured by having uncertain boundaries (if any) across time and space, requiring massive and perhaps unattainable amounts of data in order to obtain complete certainty, and thus are computationally intractable for common analytic solutions. These problems may not have singularly optimal solutions, because problems will often have multiple, competing criteria and all solutions will ultimately reflect trade-offs and reduction of optimality in meeting other criteria in the set. Contextualized within the concept of enhancing adaptive human-autonomy teamwork, the human-guided machine learning research effort has five thrust areas, each with specific goals:

- 1) Novel forms of human-intelligent technology decision making: discover a novel suite of mechanisms to extract human intelligence that ensures Soldiers in the field can efficiently train and adapt intelligent technologies.
- 2) Cybernetics: elucidate principles of effective, stable mutual adaptation between humans and intelligent systems that improve performance in complex, dynamic environments. E
- 3) Hybridized thinking between man and intelligent technology: optimize how humans could think within complex human-technology ecosystems to maximize human potential to adapt the Army on the battlefield.
- 4) Human technological savvy: Create models, methods, measures, and techniques to assess and develop the “technological fluency” (i.e., “TF” = the ability of humans to use new and/or rapidly adapt existing intelligent technologies without formal training on these technologies) of Soldiers and units across a career.
- 5) Human-intelligent technology teaming assessment tools: create a stand-alone real-time assessment tool capable of adapting to evolving missions independently to support SME assessments of human-agent teaming.

Awards: The Army expects, but is not limited, to funding 2-3 awards. The expected award range is from \$200,000 to \$400,000 per year for 3-5 years.

Letter of Intent: Please see below.

Proposal Submission Deadline: June 25, 2021

Contact: Dr. Kaleb G. McDowell, kaleb.g.mcdowell.civ@mail.mil.

Grant Program: Research Interests of the Air Force Office of Scientific Research

Agency: Department of Defense Air Force Office of Scientific Research FA9550-21-S-0001

RFP Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=334084>
<https://www.afrl.af.mil/AFOSR/>

Brief Description: The objective of this portfolio is to develop the fundamental scientific knowledge required to understand the dynamics of complex, heterogeneous and reactive materials for game-changing advancements in munitions and propulsion. The research areas supported by this portfolio therefore seek to discover, characterize, and reliably predict the fundamental chemistry, physics, hydrodynamics and materials science associated with the high energetics of explosives, solid propellant burning, and structural dynamics of materials subject to shock loading. The overall scope of the research in the portfolio will be accomplished through a balanced mixture of experimental, numerical, and theoretical efforts. The fundamental science of interest to this portfolio is necessary for revolutionary advances in future Air Force and Space Force weapon systems and their propulsion capabilities, including increased energy density, operational efficiency, effect-based optimization, and survivability in harsh environments.

Awards: Multiple awards. Available Funding: \$100,000,000

Letter of Intent: Please contact the program director.

Proposal Submission Deadline: Open until new BAA is posted.

Contact: DR. MARTIN J. SCHMIDT, AFOSR/RTA1 Email: dynamicmaterials@us.af.mil (703) 588-8436; CALVIN D. SCOTT, AFOSR/RBKC Senior Procurement Analyst Email: afosr.baa@us.af.mil

Grant Program: C4ISR, Information Operations, Cyberspace Operations and Information Technology System Research, Cryogenics & Quantum

Agency: Department of Defense Naval Information Warfare Center Pacific N66001-21-S-4700

RFP Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=334026>

Brief Description: Naval Information Warfare Center, Pacific (NIWC Pacific), is soliciting proposals in accordance with FAR 35.016, DoDGARS 22.315(a), and DoD Other Transactions (OT) Guide for Prototype Projects for research in areas relating to the advancement of C4ISR capabilities, enabling technologies for Information Operations and Cyberspace Operations, and Information Technology systems. See II.2 below for further details. Proposed research should investigate unique and innovative approaches for defining and developing next generation integratable C4ISR capabilities and command suites. The area topics reflect the interest of the NIWC Pacific, but interest from other Team NAVWAR components could be generated and selections could be made for funding by other than NIWC Pacific. Excluding offers for other transactions, only offers that are in the areas of basic research, applied research, advanced technology development, and advanced component development and prototypes will be considered (see Appendix A). Testing and optimizing of concepts or prototypes may be necessary. This may involve virtual simulation and/or laboratory as well as at sea measurements. Technical topics of interest include:

1. General C4ISR
2. Command and Control
3. Communications
4. Intelligence, Surveillance and Reconnaissance
5. Unmanned Vehicles
6. Information Operations/Cyberspace Operations
7. Ubiquitous Communications and Computing Environment
8. Science, Technology, Engineering and Mathematics Research
9. Advanced Power and Energy Production and Efficient Use
10. Cryogenics & Quantum*

Awards: Multiple awards are anticipated; NIWC Pacific reserves the right to select for award all, some, one, or none of the proposals received in response to this announcement.

Letter of Intent: Please see below.

Proposal Submission Deadline: This announcement is open for 365 days from the original posting date (6/4/2021). Any white papers received during that time shall only be considered for award of a contract, other transaction, grant, or cooperative agreement. If the Government intends to award a grant or cooperative agreement, it will issue a Research Announcement (RA).

Step 1: White papers may be submitted during the times specified in Part I or further specified in individual Calls. All white papers will be evaluated in accordance with the evaluation criteria identified in Section IV unless further defined in individual Calls. White paper responses will contain the Government evaluation board's opinion of whether the idea expressed in the white paper is likely to generate a successful proposal. Debriefs will not be provided for white paper submissions. Step 2: Proposals may be requested when the Government evaluation board's opinion of the idea expressed in the white paper is likely to generate a successful proposal.

Contact: David Roden (Primary) Contract Specialist Telephone: (619) 553-2087 Email: David.Roden@navy.mil NIWC Pacific Code 22710 53560 Hull Street San Diego, CA 92152-5001

Grant Program: DoD Duchenne Muscular Dystrophy, Idea Development Award

Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-21-DMDRP-IDA

RFP Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=333851>

Brief Description: The vision of the FY21 DMDRP is to preserve and improve the function and quality of life and to extend the life span of all individuals with Duchenne. As such, the DMDRP is seeking to better characterize Duchenne pathophysiology, support discovery and development of therapeutics, related devices and tools, as well as to promote their rigorous preclinical and clinical testing. Additionally, the DMDRP supports the efforts of the National Institutes of Health (NIH) Muscular Dystrophy Coordinating Committee (MDCC) and the 2015 MDCC Action Plan for the Muscular Dystrophies, which prioritizes the needs to improve treatments and reduce the disease burden for muscular dystrophy, including DMD.

The DMDRP Idea Development Award promotes new ideas that are still in the early stages of development and have the potential to yield impactful data and new avenues of investigation. This award supports conceptually innovative, high-risk/high-reward research that could lead to critical discoveries or major advancements that will accelerate progress in improving outcomes for individuals with DMD. Applications should include a well-formulated, testable hypothesis based on strong scientific rationale.

Awards: The anticipated direct costs budgeted for the entire period of performance for an FY21 DMDRP Idea Development Award will not exceed \$350,000. Estimated Total Program Funding: \$4,480,000

Letter of Intent: Please see below.

Proposal Submission Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), August 11, 2021 • Invitation to Submit an Application: September, 2021 • Application Submission Deadline: 11:59 p.m. ET, December 1, 2021

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

Grant Program: DOD Hearing Restoration Focused Research Award

Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-21-HRRP-FRA

RFP Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=333693>

Brief Description: It is estimated that more than 30 million Americans over the age of 12 have hearing loss in both ears and an estimated 48 million have hearing loss in at least one ear. The most recent data from the Department of Veterans Affairs (VA) indicates that there are more than 1.3 million Veterans with Service-connected disability due to hearing loss. While hearing loss has profound impact on quality

of life, there is no drug approved by the U.S. Food and Drug Administration (FDA) for hearing restoration. Despite significant advances in the understanding of hearing loss in animal models, the development of hearing restoration therapeutics has been hindered by difficulties in validation and translation, and by limitations in precision diagnostic capability. The HRRP aims to advance the science of hearing restoration by funding groundbreaking research that removes barriers in translation and/or diagnosis.

To meet the intent of the award mechanism, all applications to the FY21 HRRP FRA must address research in one or more of the following Focus Areas: • Accelerate translation of biological regeneration/repair mechanisms into therapies that treat auditory system injury and restore auditory function. For example, but not limited to: ○ Hair cell regeneration/repair/recovery ○ Neural regeneration/repair/recovery ○ Treatment for synaptopathy and hidden hearing loss • Diagnostic tests that help differentiate sensory, neural, synaptic, and central processing disorders, that may inform applicability and outcomes for current or future hearing restoration therapeutics. Develop reliable in-vitro human models to facilitate the understanding, derivation, and characterization of human auditory cells, and/or to facilitate the evaluation of hearing restoration therapies. • Develop and/or validate techniques/methods beyond the audiogram to diagnose acute auditory system injury in austere or remote environments. For example, but not limited to, simple and rapid assessments that are compatible with portable platforms.

Awards: Funding Level 1 supports exploratory, high-risk/high-reward research that is in the earliest stages of idea development. Funding Level 2 supports the advancement of more mature research toward clinical translation. Available funding: \$8,800,000

Letter of Intent: Please see below.

Proposal Submission Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), July 28, 2021 • Invitation to Submit an Application: September 2021 • Application Submission Deadline: 11:59 p.m. ET, November 30, 2021

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

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Department of Transportation

Grant Program: Dwight David Eisenhower Transportation Fellowship Program (DDETFP) Graduate Fellowship

Agency: Department of Transportation 693JJ318NF5227-2021

Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=331800>

Brief Description: The goals of these Grants are to provide DDETFP Graduate Fellowships to 1) attract the Nation's brightest minds to the field of transportation, 2) enhance the careers of transportation professionals by encouraging them to seek advanced degrees, and 3) bring and retain top talent in the transportation industry of the U.S.

Individual students apply for the DDETFP Graduate Fellowship. The FHWA makes awards to the Institution of Higher Education (IHE) (“Recipient”) on behalf of the student (“Student Designee”). The IHE must be accredited by a federally-recognized accrediting agency and must be located within the United States or its Territories. If a student is selected to receive a fellowship, the student, their faculty advisor, and the IHE will be responsible for completing and submitting all required paperwork to execute the Agreement. Students must be prepared to submit a copy of their application package and this Notice of Funding Opportunity (NOFO) to their IHE.

Award: The FHWA expects approximately \$1 million to be made available for the DDETFP.

Letter of Intent: Not Required

Proposal Deadline: Apr 30, 2021 Application deadline is 4/30/2021 at 5:00pm Eastern Time.

Contact Information: Ewa Flom, ewa.flom@dot.gov, 202-924-1125

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Department of Agriculture:

Grant Program: NRCS's Conservation Innovation Grants (CIG) Classic Program for Federal fiscal year (FY) 2021

Agency: Department of Agriculture USDA-NRCS-NHQ-CIG-21-NOFO0001113

Website:

<https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/financial/cig/?cid=stelprdb1046235>

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/cig/?cid=nrcs143_008205

Brief Description: NRCS is announcing the availability of up to \$15 million in Conservation Innovation Grants (CIG) funding to stimulate the development and adoption of innovative conservation approaches and technologies in conjunction with agricultural production. CIG projects are expected to lead to the transfer of conservation technologies, management systems, and innovative approaches (such as market-based systems) to agricultural producers, into technical manuals and guides, or to the private sector. Projects may be between 1 and 3 years in duration.

A webinar for CIG Classic applicants is scheduled for June 8, 2021 at 3 p.m. Eastern Time. Information on how to participate in the webinar will be posted to the [CIG Applicant website](#).

Awards: Up to \$2,000,000; Anticipated Available Funding: \$15,000,000.

Proposal Deadline: Applications must be submitted through the NRCS Programs Portal, a new system for CIG application submission, by 11:59 p.m. Eastern Time on July 19, 2021.

Contact Information: Potential applicants may contact NRCS with questions by emailing nrcsig@usda.gov

Grant Program: Agriculture and Food Research Initiative - Foundational and Applied Science

Agency: Department of Agriculture USDA-NIFA-AFRI-007692

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.

Letter of Intent: Required.

Awards: Up to \$15,000,000; Anticipated available funding: \$290,000,000

Proposal Deadline: Thursday, July 29, 2021

Contact Information: [AFRI Coordination Team](#)

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[Department of Labor](#)

Grant Program: State Apprenticeship Expansion, Equity and Innovation (SAEEI) Grant Program

Agency: Department of Labor FOA-ETA-21-07

Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=331689>

Brief Description: The SAEEI Funding Opportunity Announcement FOA will provide up to \$87.5 million in grant awards to support the expansion and diversification of Registered Apprenticeship Programs (RAPs). Grant funds will be awarded to Governor-led, state initiatives that are expanding, diversifying and transforming registered apprenticeship. Funding will provide states with the flexibility to meet specific industry needs and demands. Collectively, these efforts will aim to achieve the following goals:

- 1) System expansion to support the development, modernization, and diversification of RAPs;
- 2) Equity in apprenticeship by increasing the number of apprentices enrolled in RAPs, including underrepresented populations; and
- 3) Partnership and alignment to support workforce system integration;
- 4) Innovation in program development and recruitment strategies.

Allowable activities under this grant include activities related to establishing or expanding existing RAPs for adults and/or youth, pre-apprenticeship leading to a RAP, and wrap-around/supportive services.

Awards: FOA will provide up to \$87.5 million in grant awards.

Proposal Deadline: This advance notice is to encourage potential applicants to begin forming partnerships and other early preparations to improve readiness for when the Funding Opportunity Announcement (FOA) is published. This is not a grant solicitation, and is for informational purposes only.

Contact Information: Matthew Carls Grants Management Specialist, Carls.Matthew.L@dol.gov

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[Department of Commerce/EDA](#)

Grant Program: NIST Public Safety Innovation Accelerator Program – Artificial Intelligence for IoT Information Prize Competition

Agency: U.S. Department of Commerce NIST 2021-NIST-AI3-01

Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=333855>

Brief Description: The NIST's Public Safety Innovation Accelerator Program (PSIAP) is seeking applications from eligible applicants for activities to collaborate with technical experts from NIST, industry/academia, and public safety in developing and implementing the Artificial Intelligence for IoT Information (AI3) Prize Competition. The AI3 Prize Competition aims to utilize artificial intelligence learning techniques to make disparate situational awareness data sources actionable for first responders. The AI3 Prize Competition seeks to attract experts and innovators from industry and academia to focus on this difficult challenge by offering a monetary prize purse and an opportunity to help public safety solve this overarching problem. The AI3 Prize Competition award will include all aspects of prize development, implementation, and postcompetition publicity and evaluation of the project impact.

Awards: NIST anticipates funding 1 award for approximately \$1,200,000 with a project performance period of up to 2 years.

Letter of Intent: Contact the program director.

Proposal Deadline: Full Applications must be received at Grants.gov no later than 11:59 p.m. Eastern Time, July 26, 2021.

Contact Information: Misty L Roosa Management Analyst 301-975-3007 [Agency Contact](#)

Grant Program: Oceanic and Atmospheric Research (OAR)

Agency: Department of Commerce National Oceanic and Atmospheric Administration NOAA-OAR-OER-2022-2006910

Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=333585>

Brief Description: The NOAA Office of Ocean Exploration and Research (OER), also known as NOAA Ocean Exploration, is soliciting proposals to conduct or support ocean exploration resulting in outcomes that provide or enable initial assessments about unknown or poorly understood regions of U.S. waters. This funding opportunity will focus on the outcomes of the Workshop to Identify National Ocean Exploration Priorities in the Pacific hosted by the Consortium for Ocean Leadership (COL) in 2020 in partnership with OER. Proposals should support the ocean exploration topical priorities or spatial priorities in the U.S. Exclusive Economic Zone (EEZ) identified in the “Report on the Workshop to Identify National Ocean Exploration Priorities in the Pacific” (https://oceanleadership.org/wpcontent/uploads/2020/11/OceanExploration_PacificPriorities_Workshop_Report_NOV2020.pdf).

Proposals should also support the National Strategy for Mapping, Exploring, and Characterizing the United States Exclusive Economic Zone (national strategy, <https://oeab.noaa.gov/wpcontent/uploads/2021/01/2020-national-strategy.pdf>). Proposals for the ocean exploration and marine archaeology themes must be for projects in unknown or poorly understood areas as referenced in the national strategy’s implementation plan (<https://oeab.noaa.gov/wpcontent/uploads/2021/01/2021-national-strategy-implementation.pdf>) and within the U.S. EEZ in the Pacific Ocean.

Awards: Project funding up to \$750,000. Anticipated available funding: \$3,000,000

Letter of Intent: Pre-proposal stage (due June 21, 2021): 1. OER NOFO cover sheet 2. Pre-proposal, max 2 pages Submit to: oer.ffo2022@noaa.gov

Proposal Deadline: Full Proposal due on October 8, 2021

Contact Information: For further information and for applicants without internet, contact the NOAA Office of Ocean Exploration and Research at (301) 734-1172 or oer.ffo2022@noaa.gov

Grant Program: FY2021 to FY2023 NOAA Broad Agency Announcement (BAA)

Agency: U.S. Department of Commerce NOAA-NFA-NFAPO-2021-2006626

Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=329261>

Brief Description: This Broad Agency Announcement is a mechanism to encourage research, education and outreach, innovative projects, or sponsorships that are not addressed through NOAA’s competitive discretionary programs. This announcement is not soliciting goods or services for the direct benefit of NOAA. Funding for activities described in this notice is contingent upon the availability of Fiscal Year 2021, Fiscal Year 2022, and Fiscal Year 2023 appropriations. Applicants are hereby given notice that funds have not yet been appropriated for any activities described in this notice. Publication of this announcement does not oblige NOAA to review an application beyond an initial administrative review, or to award any specific project, or to obligate any available funds. As an agency with responsibilities for maintaining and improving the viability of marine and coastal ecosystems, for delivering valuable weather, climate, and water information and services, for understanding the science and consequences of climate change, and for supporting the global commerce and transportation upon which we all depend, NOAA must remain current and responsive in an ever-changing world.

Awards: Contingent to the availability of funds.

Letter of Intent: Contact the program director.

Proposal Deadline: September 30, 2023.

Contact Information: Mr. Lamar Dwayne Revis, 301-628-1308, lamar.revis@noaa.gov

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[EPA](#)

Grant Program: Improving Community Health through Microbial Source Tracking

Agency: Environmental Protection Agency EPA-GM-2021-MIST

Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=333927>

Brief Description: This Request for Applications (RFA) solicits applications from eligible entities for grants and/or cooperative agreements to be awarded. These awards will improve water quality, habitat, community resilience, and environmental education in the Gulf of Mexico watershed within the Continental United States (see individual funding opportunities for geographic specifications). For a list of projects funded by the Gulf of Mexico Division (GMD) under previous RFAs, please see the [EPA Gulf of Mexico story map](#). EPA is seeking applications for projects within the four funding opportunities listed below, each of which has a separate Funding Opportunity Number (FON) and is separately posted on www.grants.gov. Applicants must apply for the specific funding opportunity they are interested in. The four funding opportunities and associated FONs are:

- **Improving Community Health through Microbial Source Tracking** (FON: EPA-GM-2021-MiST)
- **Trash Free Waters – Preventing More, Picking Up Less** (FON: EPA-GM-2021-TFW)
- **Building Community Resilience Through the Reduction and Prevention of Nonpoint Source Pollution** (FON: EPA-GM-2021-NPS)
- **STEM Career Development for High School Aged Youth** (FON: EPA-GM-2021-HSCD)

Award: Up to \$1,500,000. Anticipated Funding Amount: Approximately \$9 million

Submission Deadline: August 6, 2021

Contact: U.S. Environmental Protection Agency Gulf of Mexico Division ATTN: Rachel Houge 2510 14th Street – Suite 1212 Gulfport, MS 39501 [Rachel Houge](#)

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[Department of Energy](#)

Grant Program: Quantum Horizons: QIS Research and Innovation for Nuclear Science

Agency: Department of Energy - Office of Science DE-FOA-0002514

Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=333320>

Brief Description: The DOE SC program in Nuclear Physics (NP) hereby announces its interest in receiving interdisciplinary applications for open scientific research on Quantum Computing (QC) and Quantum Information Science and Technology (QIST) with a clear line of sight to enable discoveries to explore and understand all forms of nuclear matter, including some that no longer exist. From the hot dense soup of quarks and gluons in the first microseconds after the Big Bang, through the formation of protons and neutrons beginning the evolution of the chemical elements, to the awesome power of supernovae, the physics of nuclei is fundamental to our understanding of the universe.

Quantum Horizons: QIS Research and Innovation for Nuclear Science is a new initiative to identify, prioritize, and coordinate emerging opportunities in both fundamental research and use-inspired challenges at the interface of NP and QIST. NP's Quantum Horizons program emphasizes the science-first approach and is informed by the results of NP community research workshops "Opportunities for Nuclear Physics & Quantum Information Science" [3] and "Quantum Computing for Theoretical Nuclear Physics" [4] and the "National Strategic Overview for Quantum Information Science" [5], the Interagency Working Group on Quantum Information Science [6] and the Nuclear Physics and Quantum Information Science report by the Nuclear Science Advisory Committee (NSAC).

Awards: It is anticipated that approximately \$10,000,000 may be available over the entire period for all awards made under this FOA, subject to availability of funds. Within this amount, up to \$5,000,000 may be available in FY 2021 to support awards under this FOA.

Letter of Intent: Submission Deadline for Letters of Intent: May 21, 2021, at 5:00 PM Eastern Time A Letter of Intent is encouraged Letter of Intent Response Date May 26, 2021, at 5:00 PM Eastern Time

Submission Deadline: Submission Deadline for Applications: June 18, 2021, at 5:00 PM Eastern Time

Contact: Dr. Gulshan Rai Program Manager 301-903-4702; gulshan.rai@science.doe.gov

Grant Program: Assisting Federal Facilities with Energy Conservation Technologies (AFFECT)

Agency: Department of Energy Golden Field Office DE-FOA-0002472

Website: <https://eere-exchange.energy.gov/Default.aspx#FoaIda431a2fd-4bd8-49ab-9fe4-2d0a244c4090>

Brief Description: As part of the DOE Office of Energy Efficiency and Renewable Energy (EERE), the Federal Energy Management Program's (FEMP) priority is to help federal agencies advance the energy efficiency and resilience of their operations, while addressing climate change and minimizing the carbon footprint. FEMP assists Federal agencies in meeting energy- and climate change-related goals by bringing expertise from all levels of project and policy implementation to identify affordable solutions and facilitate public-private partnerships.

DOE and FEMP intend to play a leading role in meeting the challenge facing our nation and our planet from climate change through advancing a plan to lead the world in building a clean energy economy to address the climate emergency. DOE and FEMP will use its resources to turn the threat of climate change into an opportunity by catalyzing our partners across the Federal government to lead through the power of example toward the goal of building a 100% clean energy economy with net-zero emissions.

FEMP's Assisting Federal Facilities with Energy Conservation Technologies (AFFECT) 2021 FAC will provide direct funding to Federal agencies for the development of energy and water efficiency projects and processes that address climate change mitigation and/or adaptation. The purpose of the AFFECT 2021 FAC funding is to initiate, supplement, improve or otherwise increase the viability and adoption of climate change mitigation and adaptation actions entailing energy efficiency, clean energy, and operational resilience at U.S. Federal government-owned facilities. This is accomplished through leveraging the use of a privately financed performance contract in the form of an Energy Savings Performance Contract (ESPC), ENABLE contract, or Utility Energy Service Contract (UESC) to enhance Federal agency climate change mitigation via energy efficiency, clean energy, and adaptation at mission critical sites. The AFFECT 2021 FAC is expected to provide 'value added' additions to projects allowing for greater impact from the projects in terms of energy cost savings and greenhouse gas (GHG) mitigation, enhanced climate change adaptation and resilience. FEMP also intends for the AFFECT 2021 FAC to provide demonstrated opportunities for replication of projects at other Federal facilities, while building a diversified workforce within the clean energy economy in construction, skilled trades, and engineering to enhance American infrastructure.

Awards: FEMP expects to make a total of approximately \$13,000,000 of Federal funding available for new awards under this FAC for 13 to 20 awards.

Letter of Intent: Not Required

Submission Deadline: July 16, 2021 at 5:00pm ET

Contact: For questions related to the EERE Exchange website: EERE-ExchangeSupport@hq.doe.gov

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[NASA](#)

Grant Program: NASA Innovative Advanced Concepts (NIAC) Phase I

Agency: NASA 80HQTR21NOA01-22NIAC-A1

Website: <https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7B45A3E9E1-E315-0A5A-C5EE-AC9732306EEC%7D&path=&method=init>

Brief Description: The NASA Innovative Advanced Concepts (NIAC) Program focuses on early stage feasibility studies of visionary concepts that address national government and commercial aerospace goals. Concepts are solicited from any field of study that offers a radically different approach or disruptive innovation that may significantly enhance or enable new human or robotic science and exploration missions. The NIAC Program supports innovative research through multiple phases of study. Phase I awards are for up to nine-month efforts funded at up to \$175,000 to explore the overall feasibility and viability of visionary concepts. Phase II awards are up to two years efforts with total funding of up to \$500,000 (per award) to further develop the most promising Phase I concepts, and to explore potential infusion options within and beyond NASA. Concepts should be sufficiently well developed at the end of Phase II to seek follow on development funds from other NASA programs, external government programs, or commercial partners. However, in rare instances there may be a compelling need for the strategic investment of additional NIAC funds to further advance Phase II concepts with clearly defined transition paths into other NASA, government, or commercial programs. Phase III awards are designed to meet this need, with the anticipated selection of no more than one new award per year. Phase III studies will be funded for a maximum duration of two years at a total funding level of up to \$2,000,000 per award. NIAC will later release separate REsearch, Development, Demonstration, and Infusion (REDDI) Appendices soliciting Phase II and Phase III proposals, respectively. NIAC will allow sufficient time for eligible Phase I Fellows awarded in this solicitation to apply for Phase II follow-on support of up to two more years of study and development.

Awards: Up to \$175,000; Multiple awards

Notice of Intent: Contact program director

Proposal Deadline: Step-A Proposals Due: July 21, 2021 (5:00 pm Eastern)

Contact: Jason Derleth NIAC Program Executive Space Technology Mission Directorate, NASA Headquarters hq-niac@mail.nasa.gov

Grant Program: ROSES 2021: Instrument Incubator Program

Agency: NASA NNH21ZDA001N-IIP

Website: <https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BDAAE2F81-ED80-CFF7-F74D-00C054480E87%7D&path=&method=init>

Brief Description: The Instrument Incubator Program (IIP) supports the development of innovative technologies for Earth observing instruments, sensors, and systems in support of Earth science. The technologies and measurement concepts developed under the IIP may extend through field

demonstrations, with a longer-term aim for infusion into future Earth Science Division research, applications, and flight programs. Emerging technologies and new instrument architectures and platforms show great promise for measuring natural Earth phenomena and physical processes that have not been well characterized by conventional satellite instruments alone. In particular, transient and dynamical phenomena have been difficult to study using traditional low Earth orbit (LEO) satellite instruments due to insufficient temporal sampling of such phenomena. Inexpensive, high quality intelligent sensors and platforms operated in higher orbits (MEO, GEO, etc.), or in a LEO constellation and/or in a coordinated fashion, coupled with new pointing, real time data processing, and commanding capabilities, could now give scientists the ability to conduct observations focused on dynamic processes and/or events of interest. These targeted events require interconnectivity and the on-platform computational capacity to coordinate among platforms, instruments, and models of the phenomenon or process. Emerging new instrument technologies potentially coupled with new platform capabilities and rapidly evolving information technologies could become the early backbone of new observing systems that can react to changing environmental conditions.

Awards: It is anticipated that a total of 12-14 proposals will be selected and the value of each will be approximately \$1.5M per year. The total proposed period of performance must not exceed 36 months.

Notice of Intent: Notices of Intent to propose are requested by May 21, 2021.

Proposal Deadline: July 20, 2021

Contact: Parminder Ghuman Science Mission Directorate Earth Science Technology Office Telephone: (301) 974-9246 Email: p.ghuman@nasa.gov

Grant Program: ROSES 2021: Living With a Star Science

Agency: NASA NNH21ZDA001N-LWS

Website: <https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BDD29C108-980F-6F1A-AEC7-CE7375E35007%7D&path=&method=init>

Brief Description: The Living With a Star (LWS) Program emphasizes the science necessary to understand those aspects of the Sun and Earth's space environment that affect life and society. The ultimate goal of the LWS Program is to provide a scientific understanding of the system that leads to predictive capability of the space environment conditions at Earth, other planetary systems, and in the interplanetary medium. Every year the LWS Program solicits Focused Science Topics (FSTs) that address some part of this goal. This goal poses two great challenges for the LWS program. First, the program seeks to address large-scale problems that cross discipline and technique boundaries (e.g., data analysis, theory, modeling, etc.); and second, the program will identify how this new understanding has a direct impact on life and society. Over time, the Targeted Investigations have provided advances in scientific understanding that address these challenges.

Awards: TBD

Notice of Intent: Please see below

Proposal Deadline: Step-1 proposals: September 8, 2021, and Step-2 proposals: November 18, 2021.

Contact: Simon Plunkett Telephone: (202) 358-2034 Email: simon.p.plunkett@nasa.gov

Jeff Morrill Telephone: (202) 358-3744 Email: jeff.s.morrill@nasa.gov

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[National Endowment of Humanities](#)

Grant Program: Fellowship Programs at Independent Research Institutions

Agency: National Endowment for the Humanities 20210811-RA

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

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

Fellowship programs may be administered by independent centers for advanced study, libraries, and museums in the U.S.; American overseas research centers; and American organizations that have expertise in promoting humanities research in foreign countries. Individual scholars apply directly to the institutions for fellowships. In evaluating applications, consideration is given to the library holdings, archives, special collections, and other resources—either on site or nearby—that institutions make available to fellows.

Program will host a [pre-application webinar](#) April 20, 2021, 2:00 p.m. Eastern Time.

Award: Maximum award amount: Up to \$565,000 (\$385,000 in outright funds plus \$180,000 in Federal Matching Funds)

Letter of Intent: Optional Draft due June 30, 2021

Proposal Deadline: Application due August 11, 2021

Contact: Contact the Division of Research Programs Team; 202-606-8200 fpiri@neh.gov

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[Private Foundations](#)

Special Funding Program: Israel-US Fund Seeking Proposals for Clean-Energy Joint Research

Grant Program: Israel-US Fund Seeking Proposals for Clean-Energy Joint Research

Agency: Israel-US Fund Seeking Proposals for Clean-Energy Joint Research

Website: <https://www.birdf.com/bird-energy-call-proposals/>

Brief Description: The Israel-US binational fund for energy research, BIRD Energy, is calling on tech firms and academic researchers in both countries to submit joint proposals for projects in the field of clean energy technologies. The [call for proposals](#) is part of BIRD Energy's next funding round for joint research. Since 2009, the fund has financed 55 projects to date with a total investment from the US and Israeli governments of a total of \$42 million. To be considered, a project proposal should include:

- R&D cooperation between two companies or cooperation between a company and a university/research institution (one from the U.S. and one from Israel)
- Innovation in all areas of renewable energy and energy efficiency, such as solar and wind
- power, advanced vehicle technologies and alternative fuels, smart grid, storage, water-energy
- nexus, advanced manufacturing, AI for energy management, etc.
- Innovation in natural gas and other associated technologies
- Significant commercial potential; the project outcome should lead to commercialization

Award: The maximum grant is \$1M per project, and no more than 50% of the joint R&D budget.

Letter of Intent: Executive Summary: June 30, 2021

Proposal Deadline: Final Proposal: August 13, 2021

Contact: Submission Information: <http://www.birdf.com/upload-system/>

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[Streamlyne Question of the Week](#)

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

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

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

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[Proposal Submission and Streamlyne Information](#) [Internal Timeline for Successful and Timely Proposal Submission](#)

Due to the COVID-19 outbreak, PIs are strongly advised to prepare proposals well in advance of agency deadlines. Every effort will be made to meet agency deadlines following the NJIT Research Continuity Plan (<https://research.njit.edu/njit-research-continuity-plan>).

The NJIT Proposal Submission Guidelines and Policy posted on the website <https://research.njit.edu/proposal-submission-guidelines> provides the expected institutional timeline for proposal submission. Streamlyne User Manuals are posted on <https://research.njit.edu/streamlyne>. For contact information on proposal submission, pre-award services and post-award grant management, please visit research website <https://research.njit.edu/researchers> and <https://research.njit.edu/contact>.

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