NJIT Research Newsletter

Issue: ORN-2021-08

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 .

Contents

Special Announcements

2021 NJIT Integrated Research Virtual Showcase (WebEx)
Research Institutes, Centers and Labs
and
Introduction of FY20 and FY21 New Faculty
March 30, 2021; 9.00 AM -11.30 AM
Please Mark Your Calendar!

The Office of Research will host the **2021 NJIT Integrated Research Virtual Showcase** on March 30, 2021 via WebEx featuring 135 research institutes, centers and labs along with 32 new faculty who joined NJIT in FY20 and FY21. The integrated showcase will start at 9.00 AM with a Distinguished Keynote Talk on "Research, Innovation and Entrepreneurship in Bioscience" by Dr. Colin Brenan, Founder/CEO

and Director of the single cell instrumentation company 1CellBio Inc. (www.1cell-bio.com). The keynote talk will be followed by 3-minutes research pitch presentations by our new FY20 and FY21 faculty as their introductions to NJIT community.

NJIT will publish a booklet with summary descriptions of the NJIT research institutes, centers and labs similar to those published in the past and posted on the website https://research.njit.edu/research-data-and-publications. The 2021 booklet will be posted on the website and a link will be sent to Presidents, Provosts and Deans of the top 150 universities in the nation via NJIT Research eNewsletter.

The showcase will provide a unique opportunity to learn about NJIT research enterprise and resources including institutes, centers and labs and faculty expertise towards developing future research collaborations and synergy. Though we will not have individual presentations for the research institutes, centers and labs due to time constraint and virtual format, their summary descriptions will be published in the 2021 booklet, and their ppt slides will be available through a shared database folder on NJIT Google Drive.

NJIT 2021 Integrated Research Showcase: Research Institutes, Centers and Labs, and Introduction of FY20 and FY21 New Faculty
March 30, 2021; Via WebEx
Agenda:

9.00 AM: Welcome Remarks
9.15 AM: Distinguished Keynote Talk (Dr. Colin Brenan https://www.linkedin.com/in/colin-brenan-a524bb6/)
10.00 AM: New Faculty Research Pitch Presentations (3 minutes each)
12.30 PM: Closing Remarks.

Speaker Biographical Sketch: Colin J.H. Brenan is a serial life sciences entrepreneur and senior executive with over 30 years of experience in building high growth, early-stage life science companies based on in-licensed university research. Dr. Brenan is presently Founder/CEO and Director of the single cell instrumentation company 1CellBio Inc. (www.1cell-bio.com); formerly Founder/Chief Commercial Officer and Director of antibody drug developer HiFiBiO Ltd (www.hifibio.com); and, a Managing Partner of the seed stage investment fund 7Pines Holding BV. Previously he was Managing Director of the Monsanto-Atlas Seed Fund Alliance at Atlas Venture (Cambridge, USA) where he identified and invested in seed and early-stage life science companies. Prior to Atlas, Dr. Brenan was Director of Strategic Relationships for the Center for Integration of Medicine and Innovative Technology (**CIMIT**) – a Partners Healthcare innovation center (Boston, MA).

Before joining CIMIT, Dr. Brenan was the Founder, Chief Technology Officer, SVP, Business Development and a Director of BioTrove Inc. (Woburn, USA), a life science nanofluidic tools company spun-out from the Massachusetts Institute of Technology (MIT) and acquired by Life Technologies Inc. (LIFE:NASDAQ); and a Founder of Biocius Inc., a drug discovery instrument and service provider spun-out from BioTrove and acquired by Agilent Inc. (A:NYSE).

Dr. Brenan is the inventor on 26 US patents, 27 non-US patents, +60 patent applications and published +50 peer-reviewed journal articles, book chapters and reports in the fields of bio-microsystems, confocal microscopy, spectroscopic imaging, drug discovery and microsurgical robotics. He has over a decade of experience in consulting for the US National Institutes of Health and is a reviewer for IEEE, IEE, and AIP journals. Dr. Brenan is an IEEE Senior Member, serves currently as the IEEE-EMBS VP of Technical Activities and is formerly Editor-in-Chief of IEEE PULSE Magazine. He received his B.Sc.

(Honors Physics), M. Eng. (Electrical), and Ph.D. (Biomedical Engineering) from McGill University (Montreal, Canada) and completed postdoctoral training at MIT (Cambridge, USA).

Institute for Data Science
Ying Wu College of Computing Distinguished Speaker
March 3, 2021; 4.00 PM – 5.00 PM
https://datascience.njit.edu/sites/datascience/files/IDS%20Seminar%203-3.pdf

Seminar Title: Big Data in Climate and Earth Sciences: Challenges and Opportunities for Data Science
YWCC Distinguished Speaker: Vipin Kumar, Ph.D. Regents Professor
William Norris Chair in Large Scale Computing, Department of Computer Science and Engineering, University of Minnesota

Abstract: The climate and earth sciences have recently undergone a rapid transformation from a data-poor to a data-rich environment. In particular, massive amount of data about Earth and its environment is now continuously being generated by a large number of Earth observing satellites as well as physicsbased earth system models running on large-scale computational platforms. These massive and information-rich datasets offer huge potential for understanding how the Earth's climate and ecosystem have been changing and how they are being impacted by human's actions. This talk will discuss various challenges involved in analyzing these massive data sets as well as opportunities they present for both advancing machine learning as well as the science of climate change in the context of monitoring the state of the tropical forests and surface water on a global scale.

Speaker's Bio: Vipin Kumar is a Regents Professor at the University of Minnesota, where he holds the William Norris Endowed Chair in the Department of Computer Science and Engineering. He also served as the Head of the Computer Science and Engineering Department from 2005 to 2015 and the Director of Army High Performance Computing Research Center (AHPCRC) from 1998 to 2005. Kumar's research spans data mining, high-performance computing, and their applications in Climate/Ecosystems and health care. His research has resulted in the development of the concept of isoefficiency metric for evaluating the scalability of parallel algorithms, as well as highly efficient parallel algorithms and software for sparse matrix factorization (PSPASES) and graph partitioning (METIS, ParMetis, hMetis). Kumar's current

major research focus is on bringing the power of big data and machine learning to understand the impact of human induced changes on the Earth and its environment.

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2021 NSF Engineering CAREER Proposal Writing Workshop
April 21, 2021; 1:00 PM - 5:00 PM
April 22, 2021; 1:00 PM - 5:00 PM
April 23, 2021; 1:00 PM - 5:00 PM
Junior faculty must apply by February 19, 2021, to participate in the mock panel review session
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302095&org=NSF

The **2021 NSF Engineering CAREER Proposal Writing Workshop** will be held **VIRTUALLY April 21-23, 2021**, from 1:00PM to 5:00PM ET each day. The workshop aims to provide junior faculty who plan to submit a CAREER proposal to a program in the NSF Directorate for Engineering (ENG) with a CAREER proposal review experience and a forum in which they can interact with NSF Program Directors and recent NSF CAREER awardees.

Attendees of the 2021 NSF ENG CAREER Proposal Writing Workshop will benefit from:
- Mock proposal reviews by panels
- Interactions with ENG Directorate Program Directors
- Focus sessions with recent CAREER awardees
- Interaction across disciplines and engineering schools nationwide

All activities for the 2021 NSF ENG CAREER Proposal Writing Workshop will be conducted virtually. The Mock Panel Review session is limited to 300 participants; however, all other sessions will be open. Mock Panel participants will be selected from those who submit completed applications. **The deadline for applications is February 19, 2021.** Visit **https://apply.hub.ki/career/** for details.

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NJIT Pandemic Recovery Plan
Research Continuity and Phased Recovery Plan
https://research.njit.edu/njit-pandemic-recovery-plan

NJIT faculty, staff, and students at research facilities must follow the specific social distancing and safety protocols including the use of personnel protective equipment (PPE) as required by the institutional, state and federal guidelines in the respective phase of the research continuity plan. State and national information regarding current conditions can be found at:
- New Jersey's COVID-19 information hub: https://covid19.nj.gov/index.html
- CDC guidelines on "Symptoms of Coronavirus": https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html
- CDC guidelines on "Use of Cloth Face Coverings to Help Slow the Spread of COVID-19": https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html

The details on NJIT Research Continuity and Phased Recovery Plan and associated protocols are posted on the website https://research.njit.edu/njit-pandemic-recovery-plan

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Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: **NSF Boosting Research Ideas for Transformative and Equitable Advances in Engineering (BRITE);** Antarctic Research Small Business Technology Transfer Programs; Small Business Innovation Research Programs Future Manufacturing (FM)Stimulating Collaborative Advances Leveraging Expertise in the Mathematical and Scientific Foundations of Deep Learning (SCALE MoDL); Understanding the Rules of Life: Emergent Networks (URoL:EN)

NIH: **NINDS Institutional Research Training Program (T32); Maximizing Access to Research Careers (T34); Undergraduate Research Training Initiative for Student Enhancement (U-RISE) (T34);** Limited Competition: Basic Instrumentation Grant (BIG) Program (S10); Shared Instrumentation Grant (SIG) Program (S10); High-End Instrumentation (HEI) Grant Program (S10)

Department of Defense/US Army/DARPA/ONR: **Waveform Agile RF Directed Energy (WARDEN);** FY21 Young Investigator Program; Joint Artificial Intelligence Center Test and Evaluation Science & Technology for Advanced Manufacturing Projects (STAMP)

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

Department of Agriculture: **Data and Technical Assistance (DATA) Grants 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: **2021 Build to Scale Program;** Graduate Student Measurement Science and Engineering (GMSE) Fellowship Program; Measurement Science and Engineering (MSE) Research Grant Programs FY 2021 NIST Small Business Innovation Research Program (SBIR) Phase I; FY2021 to FY2023 NOAA Broad Agency Announcement (BAA)

EPA: **FY 2021 National Environmental Information Exchange Network Grant Program**

Department of Energy: **ARPA-E OPEN 2021;** X-Strack: Programming Environments for Scientific Computing

NASA: **ROSES 2021: Living With a Star Science;** New (Early Career) Investigator Program in Earth Science; ROSES 2020: Heliophysics Flight Opportunities in Research and Technology; Earth Science Applications: Health and Air Quality; Advanced Information Systems Technology

National Endowment of Humanities: **Humanities Initiatives;** Research and Development; Awards for Faculty

Private Foundations: **New Jersey Commission on Spinal Cord Research: NJCSR Research Program; New Jersey Historical Foundation: F22 Project Grant; NIH-POCTRN Centers: Point-Of-Care Technology Research Program**

Back to Contents

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Recent Research Grant and Contract Awards

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

PI: Kathleen McEnnis (PI)
Department: Chemical and Material Engineering

Grant/Contract Project Title: Mesenchymal stem cells as platinum nanoparticle delivery system for breast cancer treatment
Funding Agency: NJ Health Foundation
Duration: 02/15/21-02/14/22

PI: Sergei Adamovich (PI)
Department: Center for Rehabilitation Robotics
Grant/Contract Project Title: Effects of Motor Cortex Priming on Hand and Arm Rehabilitation Training Post Stroke
Funding Agency: NJ Health Foundation
Duration: 02/15/21-02/14/22

PI: Qing Liu (PI)
Department: Electrical and Computer Engineering
Grant/Contract Project Title: Science-driven Data Management for Multi-tiered Storage (SIRIUS) Project 2.0
Funding Agency: U.S. Department of Energy
Duration: 10/01/19-09/30/21

PI: Farzan Nadim (PI) and Dirk Bucher (Co-PI)
Department: Biological Sciences
Grant/Contract Project Title: Neuromodulation of Neuronal Oscillations
Funding Agency: NIH
Duration: 02/01/18-01/31/23

PI: David Bader (PI)
Department: Institute of Data Science
Grant/Contract Project Title: EAGER: High Performance Algorithms for Interactive Data Science at Scale
Funding Agency: NSF
Duration: 03/01/21-02/28/22

Back to Contents

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In the News…

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

GSA to Verify Identities of SAM Users: New capabilities being added in May to beta.SAM.gov—the General Services Administration's consolidated procurement website—will come with new, stringent security protocols requiring certain users to verify their accounts are connected to real-world people. On May 24, the entity registration functions of SAM.gov will be moved over to beta.SAM.gov and the latter will lose the "beta" and become the one and only SAM.gov. At that time, GSA plans to institute new security measures for entity registration—voluntary at first but mandatory come October.

As GSA consolidates all of its procurement tools into a single site, the agency has been incorporating Login.gov as the single sign-on for all of these capabilities. When the System for Award

Management, or SAM, registration functions are ported over, the system will take advantage of Login's identity proofing capability for an added layer of security. The identity proofing—verifying that an online account is connected to a specific, real person—will be for users who manage organizations' SAM registration, which includes the unique identifier used to reference entities receiving federal contracts and grants and all the identifiable information about that organization. More information is posted on the NextGov website.

NSF and Amazon Tackling Artificial Intelligence-Based Bias: The National Science Foundation and Amazon teamed up to fund a second round of research projects aimed at promoting trustworthy artificial intelligence and mitigating bias in systems. The latest cohort selected to participate in the Program on Fairness in AI include multi-university projects to confront structural bias in hiring, algorithms to help ensure fair AI use in medicine, principles to guide how humans interact with AI systems, and others that focus on education, criminal justice and human services applications.

"With increasingly widespread deployments, AI has a huge impact on people's lives," Henry Kautz, NSF division director for Information and Intelligent Systems, said. "As such, it is important to ensure AI systems are designed to avoid adverse biases and make certain that all people are treated fairly and have equal opportunity to positively benefit from its power." Kautz, whose division oversees the program, briefed *Nextgov* on the complexities that accompany addressing fairness in AI—and the joint initiative NSF and Amazon are backing to help contribute to the creation of more trustworthy technological systems. More information is posted on the NextGov website.

New U.K. Funding Agency on Innovative Research: The U.K. government has released its plans for emulating the storied high-risk, high-reward U.S. funding agency, the Advanced Research Projects Agency (ARPA). During the 2019 election campaign, the Conservative government promised to set up such an agency, and Prime Minister Boris Johnson's former adviser Dominic Cummings pushed for it. Now, it has a name: the Advanced Research & Invention Agency (ARIA), and a confirmed budget. Business secretary Kwasi Kwarteng announced today it would be funded by an initial £800 million over 4 years, and would begin to disburse grants by 2022.

Unlike ARPA, now known as DARPA because it specializes in defense-related research, ARIA so far lacks a focus, which concerns some experts. "The fabric of an ARPA organization is its mission," says Anna Goldstein, a science policy researcher at the University of Massachusetts, Amherst, who provided evidence on ARPA to U.K. politicians. Without that, she says, "ARIA is a solution in search of a problem." More information is available on the website.

Army Launches Autonomous Vehicle Tests in Maryland: Army researchers recently began experimenting with unmanned, autonomous vehicles on land that was used to test munitions and weapons almost 100 years ago. About 200 acres across the Aberdeen Proving Ground in Middle River, Maryland, now make up a modern military study site, where Army Research Laboratory officials are working to prove and refine the performance of the software framework and algorithms created to explore systems' intelligence—and enable machines' abilities to carry out specific tasks. "The one-of-its-kind research campus was established to advance Army knowledge of autonomy and intelligent systems through basic and applied research of unmanned technologies that integrate artificial intelligence, autonomy, robotics and human teaming elements in complex environments," Jeffrey Westrich, an ARL program manager said in a statement Thursday. More information is posted on the NextGov website.

Back to Contents

Event: BIO-wide Virtual Office Hours: COVID-19 Response Update
Sponsor: NSF
When: March 2, 2021, 11.00 AM – 12.00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302167&org=NSF
Brief Description: As noted in a recent announcement and in order to answer any questions the community may have about BIO's efforts in response to the COVID-19 pandemic or the support available to the wider community, we will host a BIO-wide virtual office hour on Tuesday, March 2 from 11AM to 12PM Eastern.
To Join the Webinar: Registration for this event is now open.

Event: Mathematical and Scientific Foundations of Deep Learning (SCALE MoDL)
Sponsor: NSF
When: March 5, 2021, 1.00 PM – 2.00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302168&org=NSF
Brief Description: The management team for the NSF program Stimulating Collaborative Advances Leveraging Expertise in the Mathematical and Scientific Foundations of Deep Learning (SCALE MoDL) (NSF 21-561) will host a webinar to provide an overview of the program.
Deep learning has met with impressive empirical success that has fueled fundamental scientific discoveries and transformed numerous application domains of artificial intelligence. Our incomplete theoretical understanding of the field, however, impedes accessibility to deep learning technology by a wider range of participants. Confronting our incomplete understanding of the mechanisms underlying the success of deep learning should serve to overcome its limitations and expand its applicability.
The SCALE MoDL program will sponsor new research collaborations consisting of mathematicians, statisticians, electrical engineers, and computer scientists. Research activities should be focused on explicit topics involving some of the most challenging theoretical questions in the general area of Mathematical and Scientific Foundations of Deep Learning. Each collaboration should conduct training through research involvement of recent doctoral degree recipients, graduate students, and/or undergraduate students from across this multi-disciplinary spectrum.
To Join the Webinar: Participants should register (and may do so in advance) at the web page
https://nsf.zoomgov.com/webinar/register/WN_N9X5842dQ3-B6CkNvYXMwA

Event: Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support (ACCESS) Program Webinar
Sponsor: NSF
When: March 9, 2021, 2020 2.00 PM – 4.00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302091&org=NSF
Brief Description: NSF, through the Office of Advanced Cyberinfrastructure (OAC), has published a vision that calls for the broad availability and innovative use of an agile, integrated, robust, trustworthy and sustainable CI ecosystem that can drive new thinking and transformative discoveries in all areas of S&E research and education. In support of this vision, NSF has released two solicitations as part of the Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support (ACCESS) Program.
NSF 21-555 (ACCESS) expects to fund five (5) awards for five (5) Cyberinfrastructure Coordination Service Tracks: (1) Allocation Services; (2) End User Support Services; (3) Operations & Integration Services; (4) Monitoring & Measurement Services; and (5) Technology Translation Services. Together, these services are expected to provide a seamless experience for an increasing breadth of research users across a highly performing innovative array of national computational computing resources.

[NSF 21-556 (ACCESS-ACO)](#) expects to fund one award for an ACCESS Coordination Office (ACO) to support the collective and coordinated operation of the five CI coordination services. Specifically, the ACO will provide coordination and support services and staffing for top-level coordination and communications among the ACCESS awardees and with the public, including support for top-level inter-awardee governance, coordination of an external advisory board to the ACCESS awardees, maintenance of the top-level landing page of the ACCESS website, and coordinated community-building activities.

This webinar will orient potential proposers to the ACCESS program, discuss both solicitations, and provide a Q&A session to help lead to the submission of high-quality proposals.

To Join the Webinar: Please register for the webinar at:
https://nsf.zoomgov.com/webinar/register/WN_FMajxq5LTwS_Jq5lo_O9Kw

Event: Predictive Intelligence for Pandemic Prevention (PIPP) Webinars
Sponsor: NSF
When: March 22, 2021 12:00 PM to March 23, 2021 5:00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302023&org=NSF
Brief Description: The Directorates for Biological Sciences (BIO); Computer Information Science and Engineering (CISE); Engineering (ENG); Social, Behavioral and Economic Sciences (SBE); and the Office of International Science and Engineering (OISE) at the National Science Foundation (NSF) are jointly supporting a series of interdisciplinary workshops to engage research communities around the topic of **Predictive Intelligence for Pandemic Prevention**. This topic arises both from fundamental scientific questions and pressing societal needs. Consequently, NSF is holding a series of virtual workshops that bring together interdisciplinary experts in the **biological, engineering, computer,** and **social and behavioral sciences** to start conversations and catalyze ideas on how to advance scientific understanding beyond state-of-the-art in pre-emergence and emergence forecasting, real-time monitoring, and detection of inflection point events in order to prevent and mitigate the occurrence of future pandemics. These goals will be met through integration of fundamental science and engineering advances related but not limited to: synergistic biological interactions spanning molecular, organismal, and epidemiological scales; computational algorithms and frameworks for intelligent processing, analyzing and modeling of data; multiscale smart bio-sensing technologies, networked sensors, in-situ computation; understanding disease transmission due to human social behavior and attitudes and the drivers underlying both. As per our mission, these NSF supported workshops will focus on the foundational knowledge and capabilities needed to inform future infectious disease outbreak prediction and pandemic prevention.

Each of these workshops is expected to have up to 50 invited active participants. The community can participate in a listen-only mode and interact through chat and Q&A functions.
To Join the Webinar: Please register using the above URL.

Event: 2021 NSF Engineering CAREER Proposal Writing Workshop
Junior faculty must apply by February 19, 2021, to participate in the mock panel review session
Sponsor: NSF
When: April 21, 2021; 1:00 PM - 5:00 PM
April 22, 2021; 1:00 PM - 5:00 PM
April 23, 2021; 1:00 PM - 5:00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302095&org=NSF
Brief Description: The **2021 NSF Engineering CAREER Proposal Writing Workshop** will be held **VIRTUALLY April 21-23, 2021**, from 1:00PM to 5:00PM ET each day. The workshop aims to provide junior faculty who plan to submit a CAREER proposal to a program in the NSF [Directorate for](#)

Engineering (ENG) with a CAREER proposal review experience and a forum in which they can interact with NSF Program Directors and recent NSF CAREER awardees.

Attendees of the 2021 NSF ENG CAREER Proposal Writing Workshop will benefit from:
- Mock proposal reviews by panels
- Interactions with ENG Directorate Program Directors
- Focus sessions with recent CAREER awardees
- Interaction across disciplines and engineering schools nationwide

All activities for the 2021 NSF ENG CAREER Proposal Writing Workshop will be conducted virtually. The Mock Panel Review session is limited to 300 participants; however, all other sessions will be open. Mock Panel participants will be selected from those who submit completed applications. **The deadline for applications is February 19, 2021.**

To Join the Webinar: Visit **https://apply.hub.ki/career/** for details.

Back to Contents

Grant Opportunities

National Science Foundation

Grant Program: NSF Boosting Research Ideas for Transformative and Equitable Advances in Engineering (BRITE)
Agency: National Science Foundation NSF 21-568
RFP Website: https://www.nsf.gov/pubs/2021/nsf21568/nsf21568.htm
Brief Description: The National Science Foundation's strategic goals are to expand knowledge and build capacity for a diverse science and engineering workforce [1,2]. The goal of this solicitation is to enable and create opportunities to advance scientific discoveries and new research using a variety of approaches that harness the national talent ecosystem of experienced faculty. Recognizing that a successful faculty research career is neither linear nor continuous, this BRITE solicitation seeks proposals that enable experienced researchers and scholars (tenured or equivalent) to forge new directions or to enter new fields by capitalizing or branching out of their established knowledge domains.

All BRITE proposals are expected to address fundamental research that creates new knowledge in one or more CMMI program areas. BRITE proposals must identify key research outcomes and describe the research plans for the period of funding sought. Although collaborative proposals are not permitted and will be returned without review, the PI can include a collaborator in a limited role as senior personnel. The solicitation includes four funding tracks: Synergy, Pivot, Relaunch, and Fellow in support of experienced scientists and engineers (tenured or equivalent).

Awards: Standard Grant; Anticipated Funding Amount: $10,000,000
Letters of Intent: Not Required
Proposal Submission Deadline: May 25, 2021
Contacts: Nakhiah C. Goulbourne, telephone: (703) 292-7715, email: brite@nsf.gov
- Laurel C. Kuxhaus, telephone: (703) 292-4465, email: brite@nsf.gov
- Siddiq M. Qidwai, telephone: (703) 292-2211, email: brite@nsf.gov

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Grant Program: Antarctic Research
Agency: National Science Foundation NSF 21-567
RFP Website: https://www.nsf.gov/pubs/2021/nsf21567/nsf21567.htm

Brief Description: The Antarctic Sciences Section (ANT) of the Office of Polar Programs (OPP) supports cutting-edge research that:

- Improves understanding of interactions among the Antarctic region and global systems;
- Expands fundamental knowledge of Antarctic systems, biota, and processes; and
- Utilizes the unique characteristics of the Antarctic region as a science observing platform.

The U.S. Antarctic Program (USAP) supports scientific research in Antarctica and the Southern Ocean with logistics provided by OPP's Antarctic Infrastructure and Logistics Section (AIL). Antarctic fieldwork is supported only for research that must be performed, or is best performed, in Antarctica. ANT encourages research, using existing samples, data, and models, that do not require fieldwork.

ANT encourages and supports research that crosses and combines disciplinary perspectives and approaches. ANT also supports proposals that promote effective collaborations between Polar and cyberinfrastructure researchers.

Awards: Standard Grant or Continuing Grant; Anticipated Funding Amount: $60,000,000

Letters of Intent: Not Required

Proposal Submission Deadline: Proposals Accepted Anytime

Contacts: Paul M. Cutler, Program Director, Glaciology, Ice Core Science, and Geomorphology, W7217, telephone: (703) 292-4961, fax: (703) 292-9025, email: pcutler@nsf.gov

- Karla Heidelberg, Program Directory, Antarctic Organisms and Ecosystems, W7153, telephone: (703) 292-2586, email: kheidelb@nsf.gov

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Grant Program: Small Business Technology Transfer Programs; Small Business Innovation Research Programs
Agency: National Science Foundation
RFP Website:
Small Business Technology Transfer Program Phase II (STTR Phase II) NSF 21-566
https://www.nsf.gov/pubs/2021/nsf21566/nsf21566.htm
Small Business Innovation Research Program Phase II (SBIR Phase II) NSF 21-565
https://www.nsf.gov/pubs/2021/nsf21565/nsf21565.htm
Small Business Technology Transfer (STTR) Program Phase I NSF 21-563
https://www.nsf.gov/pubs/2021/nsf21563/nsf21563.htm
Small Business Innovation Research (SBIR) Program Phase I NSF 21-562
https://www.nsf.gov/pubs/2021/nsf21562/nsf21562.htm

Brief Description: The STTR program is intended to support scientific excellence and technological innovation that is moving from the lab to the market. By investing federal research and development funds into startups and small businesses, NSF hopes to build a strong national economy and stimulate the creation of novel products, services, and solutions in the private sector; strengthen the role of small business in meeting federal research and development needs; increase the commercial application of federally supported research results; and develop and increase the US workforce, especially by fostering and encouraging participation by socially and economically disadvantaged and women-owned small businesses.

The STTR program at NSF solicits proposals based on groundbreaking scientific discoveries or significant engineering breakthroughs from the small businesses consistent with NSF's mission to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense.

The SBIR program is intended to support scientific excellence and technological innovation that is moving from the lab to the market. By investing federal research and development funds into startups and small businesses, NSF hopes to build a strong national economy and stimulate the creation of novel

products, services, and solutions in the private sector; strengthen the role of small business in meeting federal research and development needs; increase the commercial application of federally supported research results; and develop and increase the US workforce, especially by fostering and encouraging participation by socially and economically disadvantaged and women-owned small businesses.

The SBIR program at NSF solicits proposals based on groundbreaking scientific discoveries or significant engineering breakthroughs from the small businesses consistent with NSF's mission to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense.

Awards: Cooperative Agreement; STTR Anticipated Funding Amount: $20,000,000 to $30,000,000 SBIR Anticipated Funding Amount: $180,000,000

Letters of Intent: Not Required

Proposal Submission Deadline:
   February 16, 2021 - March 04, 2021
   March 05, 2021 - June 03, 2021
   June 04, 2021 - September 02, 2021
   September 03, 2021 - December 02, 2021

Contacts: Contact Your NSF STTR Phase I Program Officer, telephone: (703) 292-8050, email: sbir@nsf.gov

Contact Your NSF SBIR Phase I Program Officer, telephone: (703) 292-8050, email: sbir@nsf.gov

Henry Ahn, Biomedical (BM) Technologies and Medical Devices (MD), telephone: (703) 292-7069, email: hahn@nsf.gov

Peter Atherton, Advanced Analytics (AA); Artificial Intelligence (AI); Cloud and High-Performance Computing (CH); Cybersecurity and Authentication (CA); and Quantum Information Technologies (QT), telephone: (703) 292-8772, email: patherto@nsf.gov

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Grant Program: Future Manufacturing (FM)
Agency: National Science Foundation NSF 21-564
RFP Website: https://www.nsf.gov/pubs/2021/nsf21564/nsf21564.htm
Brief Description: The goal of Future Manufacturing is to support fundamental research and education of a future workforce to overcome scientific, technological, educational, economic and social barriers in order to enable new manufacturing capabilities that do not exist today. Future Manufacturing will require major advances in technologies and algorithms for the synthesis and production of new materials, chemicals, devices, components and systems of assured quality with high yield at reasonable cost. It will require new advances in artificial intelligence and machine learning, new cyber infrastructure, new approaches for mathematical and computational modeling, new dynamics and control methodologies, new ways to integrate systems biology, synthetic biology and bioprocessing, and new ways to influence the economy, workforce, human behavior, and society.

Future Manufacturing requires creative convergence approaches in science, technology and innovation, empirical validation, and education and workforce development to address pressing challenges for manufacturing. At the same time, Future Manufacturing can leverage highly integrated physical, digital and social frameworks that underpin society to enable manufacturing that addresses urgent social challenges such as global health disparities, economic and social divides, infrastructure deficits of marginalized populations and communities, and environmental sustainability. Cross-disciplinary partnerships among scientists, engineers, social and behavioral economists, and experts in arts and humanities may be required to provide solutions that are equitable and inclusive.

Among this array of technologies and potential research subjects, three thrust areas have been identified for support in FY 2021 under this solicitation:

Future Cyber Manufacturing Research,
Future Eco Manufacturing Research, and
Future Biomanufacturing Research.
Awards: Standard Grant or Continuing Grant; Anticipated Funding Amount: $32,200,000
Letters of Intent: Not Required
Proposal Submission Deadline: May 14, 2021
Contacts: William Olbricht, Program Director, (ENG/CBET), telephone: (703) 292-4842, email: wolbrich@nsf.gov

- Andrew B. Wells, Program Director, (ENG/CMMI), telephone: (703) 292-7225, email: awells@nsf.gov
- Senay Agca, Program Director, (SBE/SES), telephone: (703) 292-2459, email: sagca@nsf.gov

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Grant Program: Stimulating Collaborative Advances Leveraging Expertise in the Mathematical and Scientific Foundations of Deep Learning (SCALE MoDL)
Agency: National Science Foundation NSF 21-561
RFP Website: https://www.nsf.gov/pubs/2021/nsf21561/nsf21561.htm
Brief Description: Deep learning has met with impressive empirical success that has fueled fundamental scientific discoveries and transformed numerous application domains of artificial intelligence. Our incomplete theoretical understanding of the field, however, impedes accessibility to deep learning technology by a wider range of participants. Confronting our incomplete understanding of the mechanisms underlying the success of deep learning should serve to overcome its limitations and expand its applicability. The National Science Foundation Directorates for Mathematical and Physical Sciences (MPS), Computer and Information Science and Engineering (CISE), Engineering (ENG), and Social, Behavioral and Economic Sciences (SBE) will jointly sponsor new research collaborations consisting of mathematicians, statisticians, electrical engineers, and computer scientists. Research activities should be focused on explicit topics involving some of the most challenging theoretical questions in the general area of Mathematical and Scientific Foundations of Deep Learning. Each collaboration should conduct training through research involvement of recent doctoral degree recipients, graduate students, and/or undergraduate students from across this multi-disciplinary spectrum. This program complements NSF's National Artificial Intelligence Research Institutes and Harnessing the Data Revolution programs by supporting collaborative research focused on the mathematical and scientific foundations of Deep Learning through a different modality and at a different scale.
When responding to this solicitation, even though proposals must be submitted through the Directorate for Mathematical and Physical Sciences, Division of Mathematical Sciences (MPS/DMS), once received, the proposals will be managed by a cross-disciplinary team of NSF Program Directors. PI teams must collectively possess appropriate expertise in three disciplines - computer science, electrical engineering, and mathematics/statistics. Each project must clearly demonstrate substantial collaborative contributions from members of their respective communities; projects that increase diversity and broaden participation are encouraged.
A wide range of scientific themes on theoretical foundations of deep learning may be addressed in these proposals. Likely topics include but are not limited to geometric, topological, Bayesian, or game-theoretic formulations, to analysis approaches exploiting optimal transport theory, optimization theory, approximation theory, information theory, dynamical systems, partial differential equations, or mean field theory, to application-inspired viewpoints exploring efficient training with small data sets, adversarial learning, and closing the decision-action loop, not to mention foundational work on understanding success metrics, privacy safeguards, causal inference, and algorithmic fairness.
Awards: Continuing Grant; Anticipated Funding Amount: $15,000,000

Letters of Intent: Not Required
Proposal Submission Deadline: May 12, 2021
Contacts: Huixia Wang, Program Director, Division of Mathematical Sciences, telephone: (703) 292-2279, email: huiwang@nsf.gov
- Radhakisan S. Baheti, Program Director, Division of Electrical, Communications and Cyber Systems, telephone: (703) 292-8339, email: rbaheti@nsf.gov
- Aranya Chakrabortty, Program Director, Division of Electrical, Communications and Cyber Systems, telephone: (703) 292-8113, email: achakrab@nsf.gov

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Grant Program: Understanding the Rules of Life: Emergent Networks (URoL:EN): Predicting Transformation of Living Systems in Evolving Environments
Agency: National Science Foundation NSF 21-560
RFP Website: https://www.nsf.gov/pubs/2021/nsf21560/nsf21560.htm
Brief Description: The *Understanding the Rules of Life: Predicting Phenotype* "Big Idea" is based on developing a predictive understanding of how key properties of living systems emerge from interactions of factors such as genomes, phenotypes, and evolving environments. This activity has launched a series of new research programs designed to elucidate "minimal rules" (building a synthetic cell), "rules of complexity" (epigenetics), and "rules of interaction" (microbiome). A list of *Understanding the Rules of Life* awards made thus far can be found on the NSF Awards Search.

This *Understanding the Rules of Life: Emergent Networks* (URoL:EN) solicitation adds to those previous foundational activities to now understand "rules of emergence" for networks of living systems and their environments. Emergent networks describe the interactions among organismal, environmental, social, and human-engineered systems that are complex and often unexpected given the behaviors of these systems when observed in isolation. The behavior of emergent networks of living systems depend on, but are not wholly predicted by, chemical and physical principles and unit-level biological properties (molecule/cell/organism/population), as well as communication and information flows among nodes in the network. Networks of living systems are reciprocally coupled with natural, built, and social environments in ways that are complex and difficult to predict. The often-unanticipated outcomes of these interactions can be both wide-ranging and enormously impactful. Prediction is further hampered by accelerating perturbations within evolving environments and the associated increase in the frequency of previously rare or extreme events. Determining the emergent properties of these networks, which arise from complex and nonlinear interactions among the different systems that in isolation do not exhibit such properties, is a critical and unsolved problem. One of many examples of this could include the emerging network of interactions across scales that arose from the arrival of the nonnative pathogen, *Cryphonectria parasitica*, or Chestnut blight, introduced with nursery stock. This pathogen effectively eliminated a dominant overstory tree species, American chestnut (*Castanea dentata*), across North America and had concomitant impacts on and feedbacks between biotic, abiotic, and social networks. For example, the economic impacts of this pathogen ranged from local agricultural and social impacts to global scale impacts on the timber industry.

Successful projects of the URoL:EN program are expected to use convergent approaches that explore emergent network properties of living systems across various levels of organizational scale and, ultimately, contribute to understanding the rules of life through new theories and reliable predictions about the impact of specific environmental changes on behaviors of complex living systems, or engineerable interventions and technologies based on a rule of life to address associated outcomes for societal benefit. The convergent scope of URoL:EN projects also provides unique STEM education and outreach possibilities to train the next generation of scientists in a diversity of approaches and to engage society more generally. Hence, the URoL:EN program encourages research projects that integrate training and

outreach activities in their research plan, provide convergent training opportunities for researchers and students, develop novel teaching modules, and broaden participation of under-represented groups in science.

Awards: Standard Grant or Continuing Grant
Anticipated Funding Amount: $15,000,000
Letters of Intent: Not required
Proposal Submission Deadline: May 10, 2021
Contacts: Betsy von Holle, BIO, telephone: (703) 292-4974, email: e-networks@nsf.gov
- Mitra Basu, CISE, telephone: (703) 292-8649, email: e-networks@nsf.gov
- Jeremy Guinn, EHR, telephone: (703) 292-8193, email: e-networks@nsf.gov

Back to Contents

National Institutes of Health

Grant Program: NINDS Institutional Research Training Program (T32 Clinical Trial Not Allowed)
Agency: National Institutes of Health PAR-21-149
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-21-149.html
Brief Description: The objective of the NINDS Institutional Research Training Program is to support outstanding training with the breadth and depth to prepare advanced predoctoral and postdoctoral trainees to become successful scientists in a rapidly evolving research enterprise that is increasingly complex and multidisciplinary. Neuroscience research requires investigators who can draw on knowledge and approaches from multiple disciplines and levels of analysis, and apply this broad knowledge in novel ways to yield new discoveries about the nervous system. Moreover, impactful neuroscience research requires investigators with strong foundational skills in experimental design, statistical methodology and quantitative reasoning.
Summary of key points. It is expected that the programs supported under this funding opportunity announcement will provide:
- training and activities with a defined goal and within a thematic area that will add depth and breadth to the trainees' scientific development
- an emphasis on sound experimental design, the proper use of statistical methodology and a theoretical understanding by each trainee of the quantitative limits and capabilities of his or her experimental system (quantitative literacy)
- effective oversight of trainee mentoring and progression to the next career stage
- an environment that promotes the success of individuals with a wide variety of backgrounds and perspectives
- direct access to an appropriate diversity of role models, both within the institution and through activities such as invited seminars.
- activities for trainees to develop oral and written skills for communicating their science to a wide variety of audiences
- access to structured career development advising and opportunities to learn about career options in various sectors
Awards: Application budgets should reflect the actual needs of the proposed project.
Letter of Intent: 30 days prior to the application due date
Proposal Submission Deadline: May 25, 2021; May 25, 2022; May 25, 2023
All applications are due by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).

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

Contact: Stephen Korn, Ph.D., National Institute of Neurological Disorders and Stroke (NINDS) Email: korns@ninds.nih.gov

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Grant Program: Maximizing Access to Research Careers (T34)
Agency: National Institutes of Health PAR-21-147
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-21-147.html
Brief Description: The **Overarching Objective** of the Maximizing Access to Research Careers program is to develop a diverse pool of undergraduates who complete their baccalaureate degree and transition into and complete biomedical, research-focused higher degree programs (e.g., Ph.D. or M.D./Ph.D.). The long-term goal is to develop a diverse pool of well-trained biomedical scientists, who have the following technical, operational, and professional skills:

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

Diversity at all levels—from the kinds of science to the regions in which it is conducted to the backgrounds of the people conducting it— contributes to excellence in research training environments and strengthens the research enterprise. This FOA is intended to support outstanding research training programs that will enhance diversity at all levels. As part of a larger initiative to enhance diversity, the MARC program will support trainees who are earning a baccalaureate degree at research-intensive institutions and who intend to complete a biomedical research higher degree program (e.g., Ph.D., or M.D./Ph.D.).

Awards: Application budgets should reflect the actual needs of the proposed project.

Letter of Intent: Not required

Proposal Submission Deadline: May 26, 2021; May 26, 2022; May 26, 2023

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

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

Contact: Sydella Blatch, Ph.D., National Institutes of General Medical Sciences (NIGMS)
Email: sydella.blatch@nih.gov

Grant Program: Undergraduate Research Training Initiative for Student Enhancement (U-RISE) (T34)
Agency: National Institutes of Health PAR-21-146
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-21-125.html
Brief Description: The **Overarching Objective** of the Undergraduate Research Training Initiative for Student Enhancement program is to develop a diverse pool of undergraduates who complete their baccalaureate degree and transition into and complete biomedical, research-focused higher degree programs (e.g., Ph.D. or M.D./Ph.D.). The long-term goal is to develop a diverse pool of well-trained biomedical scientists, who have the following technical, operational, and professional skills:

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

Diversity at all levels—from the kinds of science to the regions in which it is conducted to the backgrounds of the people conducting it— contributes to excellence in research training environments and strengthens the research enterprise. This FOA is intended to support outstanding research training programs that will enhance diversity at all levels. As part of a larger initiative to enhance diversity, the U-RISE program will support trainees who are earning a baccalaureate degree at research-active institutions and who intend to complete a biomedical research higher degree program (e.g., Ph.D., or M.D./Ph.D.).
Awards: Application budgets should reflect the actual needs of the proposed project.
Letter of Intent: Not required
Proposal Submission Deadline: May 26, 2021; May 26, 2022; May 26, 2023
All applications are due by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on the listed date(s).
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.
Contact: Edgardo Falcón-Morales, Ph.D., National Institutes of General Medical Sciences (NIGMS)
Email: edgardo.falcon@nih.gov

Grant Program: Limited Competition: Basic Instrumentation Grant (BIG) Program (S10 Clinical Trial Not Allowed)
Agency: National Institutes of Health PAR-21-125
Companion Funding Opportunity:
PAR-21-126 , S10 Biomedical Research Support Shared Instrumentation Grants
PAR-21-127 , S10 Biomedical Research Support Shared Instrumentation Grants
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-21-125.html
Brief Description: With this Funding Opportunity Announcement, ORIP introduces the Basic Instrumentation Grant (BIG) Program. The Program targets institutions that have not received in any of the last 3 Federal fiscal years (FYs 2018-2020) a substantial S10 shared instrumentation award funding of a total of $250,001 or greater – see Section III.3. Additional Information on Eligibility for eligibility requirements. Institutions that are not major recipients of NIH research funding are especially encouraged to apply. Often such institutions are in Institutional Development Award (IDeA)-eligible states or serve underrepresented populations. The main objective of the BIG Program is to make available modern scientific instruments that are needed by NIH-funded investigators and other groups of biomedical scientists to advance their research and to broaden access to modern technologies at academic and research institutions nationwide. Typically, state-of-the-art technologies that are indispensable for today's research are too costly for a single investigator to purchase or operate. Their acquisitions can only be justified on a shared-use basis. Any institution that received a total of $250,001 or more of S10 grant funding in any of the 3 fiscal years 2018-2020 is not eligible to apply to this FOA.
The BIG Program provides funds to purchase a single costly, specialized, commercially available instrument or an integrated instrumentation system. An integrated instrumentation system is one in which the components, when used in conjunction with one another, perform a function that no single component can provide. The components must be dedicated to the system and not used independently. Types of instruments supported include, but are not limited to, basic cell sorters, confocal microscopes, ultramicrotomes, gel imagers, or computer systems. Applications for standalone computer systems (supercomputers, computer clusters, and data storage systems) will only be considered if the system is solely dedicated to biomedical research. All instruments, integrated systems, and computer systems must be dedicated to research only.
Awards: Applications will be accepted that request a single, commercially available instrument or an integrated instrumentation system. The minimum award is $25,000. There is no upper limit on the cost of the instrument, but the maximum award is $250,000.
Letter of Intent: Not required
Proposal Submission Deadline: June 01, 2021
All applications are due by 5:00 PM local time of applicant organization.
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: Alena Horska, PhD, Office of Research Infrastructure Programs (ORIP), Telephone: 301-435-0772; Email: SIG@mail.nih.gov

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Grant Program: Shared Instrumentation Grant (SIG) Program (S10 Clinical Trial Not Allowed)
Agency: National Institutes of Health PAR-21-127
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-21-127.html
Brief Description: The purpose of this funding opportunity is to continue the Shared Instrumentation Grant (SIG) Program administered by ORIP. The objective of the Program is to make available to institutions high-priced research instruments that can only be justified on a shared-use basis and that are

needed for NIH-supported projects in basic, translational, or clinical biomedical and bio-behavioral research. The SIG Program provides funds to purchase or upgrade a single item of expensive, state-of-the-art, specialized, commercially available instrument or an integrated instrumentation system. An integrated instrumentation system is one in which the components, when used in conjunction with one another, perform a function that no single component can provide. The components must be dedicated to the system and not used independently.

Types of supported instruments include, but are not limited to: X-ray diffractometers, mass spectrometers, nuclear magnetic resonance (NMR) spectrometers, DNA and protein sequencers, biosensors, electron and light microscopes, cell sorters, and biomedical imagers. Applications for standalone computer systems (supercomputers, computer clusters and data storage systems) will only be considered if the system is solely dedicated to biomedical research. All instruments, integrated systems, and computer systems must be dedicated to research only.

The SIG Program will not support requests for:
- An instrument with a base cost of less than $50,000;
- Multiple instruments bundled together;

Awards: Applications will be accepted that request a single, commercially available instrument or an integrated instrumentation system. The minimum award is $50,000. There is no upper limit on the cost of the instrument, but the maximum award is $600,000.

Letter of Intent: Not required

Proposal Submission Deadline: June 1, 2021

All applications are due by 5:00 PM local time of applicant organization.

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: Alena Horska, PhD, Office of Research Infrastructure Programs (ORIP), Telephone: 301-435-0772; Email: SIG@mail.nih.gov

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Grant Program: High-End Instrumentation (HEI) Grant Program (S10 Clinical Trial Not Allowed)
Agency: National Institutes of Health PAR-21-126
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-21-126.html
Brief Description: The purpose of this funding opportunity is to continue the High-End Instrumentation (HEI) Grant Program administered by the Office of Research Infrastructure Programs (ORIP). The objective of the Program is to make available to institutions high-end cutting-edge research instruments that can only be justified on a shared-use basis and that are needed for NIH-supported projects in basic, translational, and clinical biomedical or biobehavioral research. The HEI program provides funds to purchase or upgrade a single item of expensive, leading-edge, specialized, commercially available instrument or an integrated instrumentation system. An integrated instrumentation system is one in which the components, when used in conjunction with one another, perform a function that no single component can provide. The components must be dedicated to the system and not used independently.

Types of supported instruments include, but are not limited to: X-ray diffractometers, mass spectrometers, nuclear magnetic resonance (NMR) spectrometers, DNA and protein sequencers, biosensors, electron and light microscopes, cell sorters, high throughput robotic screening systems, and biomedical imagers. Applications for standalone computer systems (supercomputers, computer clusters and data storage systems) will only be considered if the system is solely dedicated to biomedical research. All instruments and integrated systems must be dedicated to biomedical research only.

The HEI Program will *not* support requests for:
- An instrument with a base cost of less than $600,001;
- Multiple instruments bundled together;

Awards: Applications will be accepted that request a single, commercially available instrument or integrated system. The minimum award is $600,001. There is no upper limit on the cost of the instrument, but the maximum award is $2,000,000.

Letter of Intent: Not required

Proposal Submission Deadline: June 1, 2021

All applications are due by 5:00 PM local time of applicant organization.

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: Guanghu (Jeff) Wang, PhD; Office of Research Infrastructure Programs (ORIP); Telephone: 301-435-0772; Email: HEI@mail.nih.gov

[Back to Contents]

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

Grant Program: Waveform Agile RF Directed Energy (WARDEN)
Agency: Department of Defense DARPA - Microsystems Technology Office HR001121S0017
Website: https://beta.sam.gov/opp/20104a5bdcb74ede858ea45a82345ae4/view
Brief Description: DARPA is soliciting innovative research and development on extreme power, broadband amplifiers and agile waveform techniques that combine frequency, amplitude, and pulse-width modulations to improve electromagnetic coupling and disruptive effects on targeted electronics. The goal of the Waveform Agile Radio-frequency Directed Energy (WARDEN) program is to extend the range of high power microwave (HPM) back-door attack by a factor of 10 beyond the current state of the art.
Awards: Total awarded funding is expected to be $51M over four years.
Letter of Intent: Please see below.
Proposal Deadline: Proposers' Day: March 5, 2021 o Requests for Security Classification Guide (SGC) and Classified WARDEN BAA Addendum: Must be made by March 25, 2021 at 5:00 PM (ET) o FAQ Submission Deadline: April 07, 2021 o Deadline to Notify Security of Intent to Submit Classified Proposals: April 9, 2021 at 5:00 PM (ET) o Proposal Due Date: April 16, 2021 at 2:00 PM (ET)
Contact Information: BAA Coordinator HR001121S0017@darpa.mil

Grant Program: FY21 Young Investigator Program
Agency: Department of Defense Office of Naval Research N00014-21-S-F001
Website: https://www.onr.navy.mil/work-with-us/funding-opportunities/announcements
Brief Description: The Office of Naval Research (ONR) is interested in receiving proposals for its Young Investigator Program (YIP). ONR's Young Investigator Program seeks to identify and support academic scientists and engineers who are in their first or second full-time tenure-track or tenure-track-equivalent academic appointment, who have received their PhD or equivalent degree on or after 01 January 2013, and who show exceptional promise for doing creative research. The objectives of this program are to attract outstanding faculty members of Institutions of Higher Education (hereafter also called "universities") to the Department of the Navy's Science and Technology (S&T) research program, to support their research, and to encourage their teaching and research careers. Individuals who are holding U.S. non-profit equivalent positions are also encouraged to apply.

Proposals addressing research areas (as described in the ONR Science and Technology Department section of ONR's website at www.onr.navy.mil) which are of interest to ONR program officers will be

considered. Contact information for each division (a subgroup of an S&T Department) is also listed within the S&T section of the website.

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

Brief informal pre-proposals may be submitted to facilitate these discussions but are not required. Such discussions can clarify the content and breadth of the priority research areas and enhance the match between a subsequent proposal and Department of the Navy research needs. Please allow adequate time for such discussions with the ONR Program Officer. The brief informal pre-proposal should be emailed to the ONR Program Officer with ONRYIP@navy.mil on the cc: line.

Awards: Award Ceiling: $6,000,000; ward Floor: $2,000,000
Letter of Intent: Please contact the program director
Proposal Deadline: March 26, 2021
Contact Information: Anastasia Lenfest Grant Specialist Phone 7035882866
Business Contact

Grant Program: Joint Artificial Intelligence Center Test and Evaluation Blanket Purchase Agreement Request for Proposal
Agency: Department of Defense W52P1J21R0029
Website:
https://beta.sam.gov/opp/93bc03aa061e43c0b5567ae8e33e9c2b/view?keywords=%22joint%20artificial%20intelligence%20cetner%22&sort=-relevance&index=&is_active=true&page=1&date_filter_index=0&inactive_filter_values=false

Brief Description: The purpose of this solicitation is to form multiple Blanket Purchase Agreements (BPAs) with Offerors who can provide Test and Evaluation (T&E) services available to the Joint Artificial Intelligence Center (JAIC), Department of Defense, and the entire U.S. Government as described in the Performance Work Statement (PWS.) This BPA will be open for ordering to the U.S. Government in support of AI T&E.

Awards: TBA
Letter of Intent: Please contact the program director
Proposal Deadline: March 05, 2021
Contact Information: Kristine Pennock Phone: 3097822293 kristine.s.pennock.civ@mail.mil

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Grant Program: Science & Technology for Advanced Manufacturing Projects (STAMP)
Agency: Department of Defense Office of Naval Research N00014-21-S-B002
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=329699

Brief Description: The Department of Defense Manufacturing Technology Program (ManTech) is the Defense Department's investment mechanism for staying at the forefront of defense-essential manufacturing capability. The Program develops technologies and processes for the affordable and timely production and sustainment of defense systems. The Program impacts all phases of acquisition. It aids in achieving reduced acquisition and total ownership costs by developing, maturing, and transitioning key manufacturing technologies. ONR will focus investments on those that have the most benefit to the warfighter and include quick-hitting, rapid response projects to address immediate manufacturing needs. The ManTech Program targets the needs of our warfighters and weapon system programs by helping to find and implement affordable low-risk solutions. The ManTech Program:

- Provides the crucial link between technology invention and development and industrial applications;
- Matures and validates emerging manufacturing technologies to support low-risk implementation in industry and DoD facilities, for example depots and shipyards;
- Addresses production issues from system development through transition to production and sustainment;
- Disseminates information concerning improved manufacturing improvement concepts, including information on such matters as best manufacturing practices, product data exchange specifications, computer-aided acquisition and logistics support, and rapid acquisition of manufactured parts; and
- Sustains and enhances the skills and capabilities of the manufacturing work force.

Awards: Multiple awards are anticipated.
Letter of Intent: Not required.
Proposal Deadline: This announcement will remain open until 30 October 2021 or until replaced by a successor BAA, whichever comes first.
Contact Information: Lynn Christian Contracting Officer For questions regarding this posting.
Questions of a technical nature should be submitted to: Point of Contact Name: Dr. William Mullins Point of Contact Occupation Title: Program Officer Division Title: Naval Materials Division Division Code: 332 One Liberty Center 875 N. Randolph Street Arlington, VA 22203-1995 Email Address: william.m.mullins@navy.mil

Back to Contents

Department of Transportation

Grant Program: 2021 High Priority Program – Innovative Technology Deployment (HP-ITD)
Agency: Department of Transportation FM-MHP-21-002
Website: https://www.grantsolutions.gov/gs/preaward/previewPublicAnnouncement.do?id=91864
Brief Description: These activities are supported in alignment with the U.S. Department of Transportation's strategic goals of: • SAFETY: Reduce transportation-related fatalities and serious injuries across the transportation system.• INFRASTRUCTURE: Invest in infrastructure to ensure safety, mobility and accessibility and to stimulate economic growth, productivity and competitiveness for American workers and businesses.• INNOVATION: Lead in the development and deployment of innovative practices and technologies that improve the safety and performance of the Nation's transportation system.• ACCOUNTABILITY: Serve the Nation with reduced regulatory burden and greater efficiency, effectiveness and accountability. This NOFO provides important information about the HP-ITD safety priorities, highlighting the critical information related to preparing and submitting an application.
Award: Various up to $2,000,000 per award; Available funding: $20,000,000
Letter of Intent: Not Required
Proposal Deadline: March 15, 2021
Contact Information: Thomas Kelly, Phone: 202-480-5240; Thomas.Kelly@dot.gov

Back to Contents

Grant Program: Data and Technical Assistance (DATA) Grants Program
Agency: Department of Agriculture Food and Nutrition Service USDA-FNS-SNAP-21-DATA
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331666
Brief Description: The purpose of the SNAP E&T Data and Technical Assistance (DATA) Grants is to support the development of State SNAP E&T data collection and reporting systems. FNS is interested in funding projects that improve States' ability to use administrative data, such as Quarterly Wage Record (QWR) information, as the source for employment and earnings of E&T participants and former participants, because it is the preferred and most reliable and efficient method to meet reporting requirements. States using random sampling to gather information are doing so as an interim approach until systems to use administrative data are in place. Therefore, proposals that include random sampling of participants or former participants as a long term strategy will not be considered.
Awards: Up to $1,000,000; Anticipated Available Funding: $3,000,000.
Proposal Deadline: April 29, 2021
Contact Information: Anna J Arrowsmith Grants Officer Anna Arrowsmith

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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

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), as described in 29 C.F.R. 29. 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 that enable participants to succeed in a RAP or pre-apprenticeship programs that directly lead to grant-funded RAPs.

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. Eligibility, scoring criteria, and other requirements for application will be outlined in full in the upcoming FOA in the spring of 2021.

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

Back to Contents

Department of Commerce/EDA

Grant Program: 2021 Build to Scale Program
Agency: U.S. Department of Commerce EDA-HDQ-OIE-2021-2006827
Website: https://www.eda.gov/oie/buildtoscale/
Brief Description: EDA is committed to furthering technology-based economic development initiatives that accelerate high quality job growth, create more economic opportunities, and support the future of the next generation of industry leading companies. To advance these goals, EDA's Office of Innovation & Entrepreneurship awards grants through the Build to Scale Program for activities designed to develop and support regional innovation initiatives.1 EDA thereby advances the growth of connected, innovation-centric economies that increase job growth, enable the workforce of tomorrow, enhance global competitiveness, and foster global competitiveness through technology commercialization and entrepreneurship

i.   Venture Challenge

The Venture Challenge invites organizations to submit competitive proposals that seek to support entrepreneurship and accelerate company growth in their community, region, or combination of regions. Competitive proposals will outline how the project will strengthen economic competitiveness through new product innovation or new technology adoption, enhancing research commercialization processes and outcomes, remediating structural barriers that inhibit regional innovation capacity and resilience, and/or leveraging regional competitive strengths to stimulate innovation and job creation. Companies served by the applicant organization should be challenging the status quo of established markets, commercializing technologies, and furthering job creation within their businesses. Applicants should provide evidence that illustrates how funds leveraged through this competition will not only launch new programming and/or scale existing programming, but also generate sustainable added value for the region's entrepreneurial ecosystem by augmenting existing regional assets for innovation and entrepreneurship.

The Venture Challenge is a single competition but is comprised of two funding levels: Build and Scale. Venture Challenge Build applicants may not request in excess of $750,000 over the three-year

period of performance. Venture Challenge Scale applicants must request more than $750,000 and may not request in excess of $1,500,000 over the three-year period of performance.

Venture Challenge Build applicants:

• May be piloting a solution to a demonstrated need
• May be implementing a proven solution for a new region or community
• Demonstrate a commitment and ability to collect agreed upon impacts
• Request may not exceed $750,000 over a 3-year project period
• Provide a 1:1 match

Venture Challenge Scale applicants:

• May be scaling an existing initiative that has established and achieved impacts
• Have a proven track record of successful deployment of programs
• Demonstrate a commitment and ability to collect agreed upon impacts
• Request must be greater than $750,000 and may not exceed $1,500,000 over a 3-year project period
• Provide a 1:1 match

Examples: Organizations interested in applying to the Venture Challenge are encouraged to review project profiles of past awardees of the 2020 Venture Challenge or i6 Challenge (the predecessor to the Venture Challenge), at https://www.eda.gov/oie/historical/.

ii.   Capital Challenge

The Capital Challenge provides operational support for the formation, launch, or scale of investment funds that seek to invest their capital in scalable startups (i.e., venture funds, seed funds, angel funds) or to organizations with a goal to expand capital deployment within a community, region, or regional industry (i.e., angel networks or investor training programs). Funding will primarily support operational and programmatic costs and may not be used as investment capital.

Capital Challenge applicants should:

• Practice equity-based investing, whether through traditional or hybrid models, or be supporting an initiative whose participants practice equity-based investing (in contrast to debt-based investing, which is not supported under the Capital Challenge)
• Evaluate companies for high-growth potential as a central factor of their investment strategy
• Utilize grant funds to catalyze the deployment of capital within their region and/or related regions •
Demonstrate a commitment and ability to collect agreed upon impacts
• Request may not exceed $400,000 over a 3-year project period
• Provide a 1:1 match

Examples: Organizations interested in applying to the Capital Challenge are encouraged to review project profiles of past awardees of the 2020 Capital Challenge or Seed Fund Support competition (the predecessor to the Capital Challenge), at https://www.eda.gov/oie/historical/.

Awards: Please see above for individual award information. EDA has been appropriated $38 million for grants authorized by Section 27 pursuant to the Consolidated Appropriations Act, 2021.

Letter of Intent: Not required.

Proposal Deadline: 11:59 P.M. EASTERN TIME ON THURSDAY, APRIL 29, 2021.

Contact Information: Office of Innovation and Entrepreneurship oie@eda.gov (202) 482-8001
NJ State Agency Contact: Edward Hummel ehummel@eda.gov (215) 316-2124

Grant Program: Graduate Student Measurement Science and Engineering (GMSE) Fellowship Program
Agency: U.S. Department of Commerce NIST 021-NIST-GMSE-01
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331314

Brief Description: The NIST's Graduate Student Measurement Science and Engineering (GMSE) Fellowship Program is seeking applications from eligible applicants for activities to provide master's and doctoral-level graduate students with opportunities and financial assistance to obtain laboratory experiences within the NIST laboratories in the science, technology, engineering and mathematics (STEM) disciplines. The recipient will work with NIST to foster collaborative STEM research relationships among NIST, master's and doctoral level graduate students, and the students' academic institutions.

Awards: NIST may fund up to approximately $3,250,000 for the GMSE Fellowship Program over five (5) 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, Tuesday, March 23, 2021.

Contact Information: Christopher Hunton Management and Program Analyst Phone 301-975-5718
Agency Contact

Grant Program: Measurement Science and Engineering (MSE) Research Grant Programs
Agency: U.S. Department of Commerce NIST 2021-NIST-MSE-01
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331121
Brief Description: NIST is soliciting applications for financial assistance for Fiscal Year 2021 (FY21) within the following NIST grant programs:
(1) the Associate Director for Innovation and Industry Services (ADIIS);
(2) the Associate Director for Laboratory Programs (ADLP);
(3) the Communications Technology Laboratory (CTL);
(4) the Engineering Laboratory (EL);
(5) Fire Research (FR);
(6) the Information Technology Laboratory (ITL);
(7) the International and Academic Affairs Office (IAAO);
(8) the Material Measurement Laboratory (MML);
(9) the NIST Center for Neutron Research (NCNR);
(10) the Physical Measurement Laboratory (PML);
(11) the Special Programs Office (SPO); and
(12) the Standards Coordination Office (SCO).
Awards: Various; Grants or cooperative agreements
Letter of Intent: Contact the program director.
Proposal Deadline: Applications will be accepted and considered on a rolling basis as they are received.
Contact Information: Misty L Roosa Management Analyst Phone 301-975-3007
Agency Contact

Grant Program: FY 2021 NIST Small Business Innovation Research Program (SBIR) Phase I
Agency: U.S. Department of Commerce NIST 2021-NIST-SBIR-01
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331104
Brief Description: The National Institute of Standards and Technology (NIST) invites small businesses to submit Phase I research applications under this Notice of Funding Opportunity (NOFO). Science and technology-based firms with strong research capabilities in any of the areas listed in Section 9.0 of this NOFO are encouraged to participate. Applications must sufficiently identify and clearly address a specific

NIST technical program area that falls within one of the research areas described in Section 9.0 (see Section 3.02.02(1)) or a NIST- patented technology available for licensing.

The statutory purpose of the SBIR Program is to strengthen the role of innovative small business concerns (SBCs) in Federally-funded research or research and development (R/R&D). Specific program goals are to: (1) stimulate technological innovation; (2) use small business to meet Federal R/R&D needs; (3) foster and encourage participation by socially and economically disadvantaged small businesses and by women-owned small businesses in technological innovation; and (4) increase private sector commercialization of innovations derived from Federal R/R&D, thereby increasing competition, productivity, and economic growth.

The NIST FY 2021 SBIR program identifies and solicits applications in topics that fall within NIST's mission and allow collaboration between NIST scientists and the SBIR awardees whenever possible.

Awards: Each Phase I award is for up to $100,000 and up to a six (6) month period of performance. Up to an additional $6,500 may be requested for Technical and Business Assistance (TABA)

Letter of Intent: Contact the program director.

Proposal Deadline: April 14, 2021

Contact Information: Christopher Hunton Management and Program Analyst Phone 301-975-5718

Agency Contact

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: Applications can be submitted on a rolling basis starting from the publication date of this Broad Agency Announcement up to 11:59:59 p.m., Eastern Daylight Time on September 30, 2023.

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

Back to Contents

EPA

Grant Program: FY 2021 National Environmental Information Exchange Network Grant Program
Agency: Environmental Protection Agency EPA-OMS-21-01
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331293

Brief Description: The EPA Exchange Network Grant Program is soliciting project applications using the Environmental Information Exchange Network (EN) to:

- Facilitate sharing of environmental data, especially through shared and reusable services.
- Reduce burden and avoid costs for co-regulators and the regulated community.
- Streamline data collection and exchanges to improve its timeliness for decision making.
- Increase the quality and access to environmental data through discovery, publishing, outbound and analytical services so it is more useful to environmental managers.
- Increase data and IT management capabilities needed to fully participate in the EN.

Award: In FY21, EPA expects to award about $8,000,000 in 20-30 assistance agreements of up to $400,000 each.

Submission Deadline: March 31, 2021; 11:59 PM Eastern.

Contact: Erika Beasley Office of Information Management Information Exchange Partnership Branch Phone: (202) 566-2530 Fax: (202) 566-1684 beasley.erika@epa.gov

Back to Contents

Department of Energy

Grant Program: OPEN 2021
Agency: Department of Energy Advanced Research Projects Agency Energy DE-FOA-0002459
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331457
https://arpa-e-foa.energy.gov/
Brief Description: ARPA-E's focused programs target specific areas of technology that the agency has identified, through extensive interaction with the appropriate external stakeholders, as having significant potential impact on one or more of the Mission Areas described in Section I.A of the FOA. Awards made in response to the solicitation for focused programs support the aggressive technical targets established in that solicitation. Taken in total, ARPA-E's focused technology programs cover a significant portion of the spectrum of energy technologies and applications.

ARPA-E's OPEN FOAs ensure that the agency does not miss opportunities to support innovative energy R&D that falls outside of the topics of the focused technology programs or that develop after focused solicitations have closed. OPEN FOAs provide the agency with a broad sampling of new and emerging opportunities across the complete spectrum of energy applications and allow the agency to "take the pulse" of the energy R&D community. OPEN FOAs have been and will continue to be the complement to the agency's focused technology programs – a unique combination of approaches for supporting the most innovative and current energy technology R&D. For instance, one-third of the sixty examples of most successful ARPA-E projects featured in ARPA-E Impact volumes (https://arpa-e.energy.gov/about/our-impact) resulted from OPEN solicitations. Potential applicants to this FOA are strongly encouraged to examine the OPEN projects in these volumes and all of the projects supported in the previous four OPEN solicitations (https://arpa-e.energy.gov/technologies/open-programs) for examples of the creative and innovative R&D ARPA-E seeks in its OPEN solicitations.

Awards: Approximately $100 million, subject to the availability of appropriated funds. Awards may vary between $250,000 and $10 million.

Letter of Intent: Please see below.

Submission Deadline: First Deadline for Questions to ARPA-E-CO@hq.doe.gov: 5 PM ET, March 26, 2021 Submission Deadline for Concept Papers: 9:30 AM ET, April 6, 2021 Second Deadline for Questions to ARPA-E-CO@hq.doe.gov: 5 PM ET, TBD Submission Deadline for Full Applications: 9:30 AM ET, TBD

Contact: ARPA-E-CO@hq.doe.gov Please contact the email address above for questions regarding Funding Opportunity Announcements. ARPA-E will post responses on a weekly basis to any questions that are received. ARPA-E may re-phrase questions or consolidate similar questions for administrative purposes.

Grant Program: X-Strack: Programming Environments for Scientific Computing
Agency: Department of Energy DE-FOA-0002460
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331171
Brief Description: The DOE SC program in Advanced Scientific Computing Research (ASCR) hereby announces its interest in basic research in computer science exploring innovative approaches to creating, verifying, validating, optimizing, maintaining, and executing scientific software targeting distributed, heterogeneous, high-performance computing platforms.

Each pre-application and application must address at least one of two research areas: 1. Automated test synthesis: Innovative methods for automatically generating tests for scientific applications to ensure that, within scientifically-relevant regimes, their behavior meets user-defined requirements and they function with the required level of equivalence across different distributed, heterogeneous, HPC platforms. All aspects of program behavior can be considered, including performance. Additional considerations may include, but are not limited to, the following objectives and the tradeoffs between them: • How to best interact with human programmers to obtain otherwise-unavailable information and/or present results. • How to minimize the number, size, and/or complexity of the generated tests. • How to minimize the execution time and/or usage of expensive/large-scale resources for testing. • How to maximize the likelihood of discovering defects and/or the determinism of the testing process. • How to provide information helpful to isolating the causes of failures. 2. Parallel-programming-model translation: Innovative methods enabling the transformation of scientific applications that make use of one parallel-programming model into applications that target heterogeneous systems using a different parallel programming model. Additional considerations may include, but are not limited to, the following objectives and the tradeoffs between them: • How, and to what extent, can behavioral equivalence be preserved by the translation process. • How to minimize the size and/or complexity of the generated code. • How to maximize the performance, readability, and/or naturalness (e.g., similarity to idiomatic usage of language constructs) of the generated code. • How to enable the continued maintenance of the transformed application.

Awards: • DOE National Laboratories: $900,000 per year • All other applicants: $300,000 per year For collaborative applications, this ceiling applies per collaborating site. The total budget of the collaboration may not exceed $1,200,000 per year.

Letter of Intent: Please see below.

Submission Deadline: Submission Deadline for Pre-Applications: March 1, 2021 at 11:59 PM Eastern Time. A Pre-Application is required Pre-Application Response Date: March 15, 2021 Submission Deadline for Applications: April 12, 2021 at 11:59 PM Eastern Time

Contact: Hal Finkel Program Manager Phone 302-912-7428
Program Manager email

Back to Contents

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 are due September 8, 2021, and Step-2 proposals are due 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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Grant Program: New (Early Career) Investigator Program in Earth Science: not solicited in ROSES-21
Agency: NASA NNH21ZDA001N-NIP
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BC31820ED-A589-B008-7448-1014FCA16C49%7D&path=&method=init
Brief Description: The New (Early Career) Investigator Program in Earth science is designed to support outstanding scientific research and career development of scientists and engineers at the early stage of their professional careers. The program welcomes innovative research initiatives and seeks to cultivate diverse scientific leadership in Earth system science. The Earth Science Division (ESD) places particular emphasis on the investigators' ability to promote and increase the use of space-based remote sensing through the proposed research. Proposals with objectives connected to needs identified in most recent Decadal Survey Thriving on our Changing Planet: A Decadal Strategy for Earth Observation from Space are welcomed. The program supports all aspects of scientific and technological research aimed to advance NASA's mission in Earth system science (See the Science Plan at http://science.nasa.gov/about-us/science-strategy/). In research and analysis, the focus areas are: • Carbon Cycle and Ecosystems, • Climate Variability and Change, • Water and Energy Cycle, • Atmospheric Composition, • Weather, and • Earth Surface and Interior
Awards: TBD
Notice of Intent: Please see below
Proposal Deadline: This program is NOT soliciting proposals this year. The 'close date' of 02/14/2022 advertised above is not a proposal due date; NSPIRES requires that a specific close date be given. Please see the program element document above for details.

Contact: Allison Leidner Earth Science Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: 202-358-0855 Email: Allison.K.Leidner@nasa.gov

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Grant Program: ROSES 2020: Heliophysics Flight Opportunities in Research and Technology
Agency: NASA NNH20ZDA001N-HFORT
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BDBCE844C-1D0B-D36A-12A6-86FC953F1B6C%7D&path=&method=init
Brief Description: The Heliophysics Flight Opportunities in Research and Technology (H-FORT) program seeks to fund space and sub-orbital science and science-enabling investigations that use platforms that include SmallSats (including CubeSats), Balloon Missions, and Hosted Rideshare Payloads, such as International Space Station (ISS)-attached payloads. The program encourages the development of technologies that will enable investigation of heliophysics science questions. All proposed investigations must be responsive to NASA Heliophysics Science Goals. H-FORT is a component of the Heliophysics Research Program and proposers interested in this program element are encouraged to see B.1 The Heliophysics Research Program Overview for Heliophysics-specific requirements and Science Goals and objectives. Common requirements for all ROSES elements are found in the ROSES Summary of Solicitation and the 2020 Proposer's Guidebook (https://prod.nais.nasa.gov/pub/pub_library/srba/propsers_guidebooks.html). The order of precedence is the following: B.11 (this document) followed by B.1, followed by the ROSES Summary of Solicitation, and the Proposer's Guidebook. Proposers should be familiar with all of these resources.
Awards: Available funding: $3,000,000
Notice of Intent: Not required.
Proposal Deadline: March 26, 2021
Contact: Dan Moses, Telephone: (202) 358-0558 Email: dan.moses@nasa.gov
Amy Winebarger, Telephone: (256) 961-7509 Email: amy.r.winebarger@nasa.gov

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Grant Program: Earth Science Applications: Health and Air Quality
Agency: NASA NNH21ZDA001N-HAQ
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7B78D66990-C241-F2F9-5A15-BC02AD87C40D%7D&path=&method=init
Brief Description: The ESD Applied Sciences Program promotes efforts to discover and demonstrate innovative and practical uses of Earth observations. The Program funds applied science research and applications projects to enable near-term uses of Earth observations, formulate new applications, integrate Earth observations and related products in practitioners' decision-making, and transition the applications. The projects are carried out in partnership with public- and private-sector organizations to achieve sustained use and sustained benefits from the Earth observations1. For more information visit the Applied Sciences Program website at http://AppliedSciences.NASA.gov/. The Program supports projects that develop and demonstrate improvements to decision-making from the use of an array of Earth observations and related products. The Program considers that Earth observations broadly include a range of products and capabilities, including Earth-observing satellite measurements (NASA in-orbit and planned satellites, as well as foreign, commercial, and other U.S. Government satellites), outputs and predictive capabilities from Earth science models, algorithms, visualizations, knowledge about the Earth system, and other geospatial products. Hereinafter, this set is referred to collectively as "Earth observations".
Awards: $3M total per year; Expected Range of Award per project: $250-350K per year
Notice of Intent: Please see below
Proposal Deadline: June 18, 2021

Contact: John Haynes Applied Sciences Program Earth Science Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: (202) 358-4665 Email: jhaynes@nasa.gov

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Grant Program: Advanced Information Systems Technology
Agency: NASA NNH21ZDA001N-AIST
Website: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BA09EE863-2451-31C0-81AB-6B54FF19F103%7D&path=&method=init
Brief Description: The AIST Program identifies, develops, and supports the adoption of novel information systems that respond to future Earth Science's needs in a 5-10-year timeframe. The program employs an end-to-end approach to advance technologies – from the design of future observation systems and strategies for the space segment, where the information lifecycle begins, to the end user where knowledge and science data intelligence is advanced, and potentially back to additional observation strategies to complement existing data and products and to improve science and forecast models and science understanding. By providing novel means to acquire new measurements using new observing strategies and distributed sensing, as well as tools to integrate and analyze these measurements using novel analytics frameworks and computational environments, AIST technologies address the future needs of Earth Science research, applied science, and other domains.
Awards: Various
Notice of Intent: Please see below
Proposal Deadline: This program element is expected to solicit proposals this year, but final details and dates are not yet determined
Contact: Jacqueline Le Moigne Earth Science Technology Office National Aeronautics and Space Administration Washington, DC 20546-0001 Telephone: (301) 286-8723 Email: Jacqueline.j.lemoigne-stewart@nasa.gov

Back to Contents

National Endowment of Humanities

Grant Program: Humanities Initiatives
Agency: National Endowment for the Humanities 20210520-AA-AB-AC-AD-AE
Website: https://www.neh.gov/grants/preservation/research-and-development
Brief Description: The National Endowment for the Humanities (NEH) Division of Education Programs is accepting applications for the five Humanities Initiatives programs: Humanities Initiatives at Colleges and Universities, Humanities Initiatives at Hispanic-Serving Institutions, Humanities Initiatives at Historically Black Colleges and Universities, Humanities Initiatives at Tribal Colleges and Universities, and Humanities Initiatives at Community Colleges. The purpose of these programs is to strengthen the teaching and study of the humanities at institutions of higher education by developing new humanities programs, resources (including those in digital format), or courses, or by enhancing existing ones.
Award: Maximum award amount: $150,000 per award; Available funding: $3,000,000
Proposal Deadline: May 21, 2021
Contact: Division of Education Programs National Endowment for the Humanities 400 Seventh Street, SW Washington, DC 20506 202-606-2324 hi@neh.gov

Grant Program: Research and Development
Agency: National Endowment for the Humanities 20210518-PR
Website: https://www.neh.gov/grants/preservation/research-and-development
Brief Description: The Research and Development program supports projects that address major challenges in preserving or providing access to humanities collections and resources. These challenges include the need to find better ways to preserve materials of critical importance to the nation's cultural heritage—from fragile artifacts and manuscripts to analog recordings and digital assets subject to technological obsolescence—and to develop advanced modes of organizing, searching, discovering, and using such materials.

This program supports projects at all stages of development, from early planning and stand-alone studies, to advanced implementation. Research and Development projects contribute to the evolving and expanding body of knowledge for heritage practitioners, and for that reason, outcomes may take many forms. Projects may produce any combination of laboratory datasets, guidelines for standards, open access software tools, workflow and equipment specifications, widely used metadata schema, or other products.

Research and Development supports work on the entire range of humanities collection types including, but not limited to, moving image and sound recordings, archaeological artifacts, born digital and time-based media, rare books and manuscripts, archival records, material culture, and art. Applicants must demonstrate how advances in preservation and access through a Research and Development project would benefit the cultural heritage community by supporting humanities research, teaching, or public programming.

Research and Development projects are encouraged to address one or more of the following areas of special interest:
- **Preserving our audiovisual and digital heritage**
- **Conserving our material past**
- **Protecting our cultural heritage**
- **Serving under-represented communities**

For more information about the program, you may refer to the pre-recorded webinar. Please note, the webinar was recorded in 2020 and therefore deadlines are outdated. An updated pre-recorded webinar for 2021 will be posted by March 4, 2021.
Award: Maximum award amount Tier I provides awards up to $75,000; Tier II provides awards up to $350,000
Proposal Deadline: Application due May 18, 2021
Contact: Division of Preservation and Access Team 202-606-8570; preservation@neh.gov

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Grant Program: Awards for Faculty
Agency: National Endowment for the Humanities 20210414-HB
Website: https://www.neh.gov/divisions/research
Brief Description: The Division of Research supports scholarly research that advances knowledge and understanding of the humanities. Through twelve annual funding opportunities, awards are made to scholars—individuals, collaborative teams, or institutions—working on research projects of significance to specific humanities fields and to the humanities as a whole. The projects that the division supports are as diverse as America itself: editions of the Dead Sea Scrolls, the history of "The Star Spangled Banner," and the autobiography of Mark Twain.

While Research Programs is the only NEH division to make awards to individuals, institutional grants are also available. **Collaborative Research** supports projects by teams of scholars. **Scholarly Editions and Scholarly Translations** provides funding for time-intensive editing projects such as the Papers of George

[Washington](#), and **Fellowship Programs at Independent Research Institutions** provides American scholars access to unique collections at American centers for humanities research around the world.
Award: Various
Proposal Deadline: Application due April 18, 2021
Contact: Division of Research Programs: (202) 606-8200 research@neh.gov

[Back to Contents](#)

Private Foundations

New Jersey Commission on Spinal Cord Research

Grant Program: NJCSR Research Program
Agency: New Jersey Commission on Spinal Cord Research (NJCSR)
Website: https://nj.gov/health/spinalcord/
https://nj.gov/health/spinalcord/documents/researchpgr.pdf
Brief Description: NJCSCR awards are intended to promote innovative, groundbreaking research, not to provide long-term support. Grantees are eligible to apply for funding for additional research projects, but all applications will be reviewed competitively
The NJCSCR is committed to accelerating research to develop effective interventions and cures for paralysis and other consequences of spinal cord injury and disease. Its primary objectives are:
• To advance the field of spinal cord repair and regeneration and the New Jersey research community by encouraging established scientists to apply their expertise to the spinal cord.
• To facilitate the application of innovative ideas from other areas of science to the challenges of spinal cord injury repair.
• To foster collaborative, interdisciplinary approaches to spinal cord research.
• To nurture the next generation of spinal cord researchers through support of young scientists and postdoctoral fellows.
• To prevent or treat secondary biological conditions resulting from spinal cord injury.
• To promote dissemination of the research findings generated by those scientists supported by the NJCSCR.
Awards: The NJCSCR will offer two types of grant awards: Exploratory Research Grants and Postdoctoral and Graduate Fellowship Grants. All qualifying institutions in New Jersey may apply.
Exploratory Research Grant Awards: The purpose of the Exploratory Research Grant award is to enable independent investigators to apply their specific expertise to spinal cord research. The award is designed to provide the resources necessary to acquire preliminary data that will allow the successful applicant to obtain continued support from the NJCSCR, NIH, and/or other funding agencies. It is specifically intended to facilitate the application of innovative ideas from other areas of science to the challenges of spinal cord injury and repair. Two-year non-renewable awards are offered to applicants at a maximum funding level of up to $100,000 per year including direct and indirect costs, (10% maximum for the latter). All awards are made through one-year contracts.
Postdoctoral and Graduate Student Fellowship Grants Awards: Postdoctoral Fellowships are three-year awards of $50,000 per annum. They provide an annual stipend of $36,000, a research allowance of $13,000, and a travel budget of $1,000.
Letter of Intent: Not required
Proposal Deadline: For all grant categories, applicants must complete an online application. Online applications must be submitted via the SAGE system no later than 3:00PM, MAY 3, 2021.

Contact: Contact NJCBR at Phone: (609) 913-5005; NJCSCR@doh.nj.gov

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New Jersey Historical Foundation

Grant Program: FY 2022 Project Grant
Agency: New Jersey Historical Foundation
Website: Project Grant FY 2022 Guidelines
Brief Description: Goals of the Grant Program: The goal of the grant program is to engage diverse audiences in the active exploration, enjoyment, interpretation, understanding, and preservation of New Jersey history. Grants are awarded to projects that achieve this objective. Successful proposals may do so through one or more of the following: • Broadening, deepening, and diversifying the audiences for New Jersey history • Strengthening existing New Jersey history organizations or programs • Initiating new programming on New Jersey history • Increasing accessibility of historical resources to diverse communities • Increasing the body and quality of information on New Jersey history available to the public • Preserving materials for the study of New Jersey history • Promoting elements of New Jersey's history that have often been underrepresented in the past.
Awards: Applicants can request up to $20,000 in support of their project.
Letter of Intent: March 31, 2021
Proposal Deadline: April 30, 2021.
Contact: Shawn Crisafulli (609) 826-3945 Shawn.Crisafulli@sos.nj.gov

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NIH-POCTRN Centers

Grant Program: Point-Of-Care Technology Research Program
Agency: NIH POCTRN Centers
Website: J https://www.poctrn.org/funding
Brief Description: Current Funding Opportunities
POCTRN 2021 Call for Proposals
- Microfluidics/Lab-on-a-Chip Point-of-Care Technologies
  Atlanta Center for Microsystems Engineered Point-of-Care Technologies
- Development of Point-Of-Care Testing for HIV and Co-Morbidities for Use in Low and Middle Income Countries
  The Center for Innovation in Point of Care Technologies for HIV/AIDS at Northwestern
- Center for Advancing Point of Care Technologies in Heart, Lung, Blood and Sleep Disorders: Funding Opportunity
  Center for Advancing Point of Care Technologies in Heart, Lung, Blood, and Sleep Disorders

Awards: Various
Letter of Intent: Not required
Proposal Deadline: Apply Now
Contact: Please contact POCTRN initiative: cimitcommunications@partners.org

Back to Contents

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Streamlyne Question of the Week

Question: **How do I enter a cost share? For my salary? For other personnel and expenses?**
Answer: Cost Share for personnel other than faculty is very similar to release time –
- add the person under Key personnel
- select the period (start and end dates) that the staff/admin will be devoted to the project
- select percentage.

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

Back to Contents

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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.

Back to Contents

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