NJIT Research Newsletter

Issue: ORN-2021-09

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

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Special Announcements

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

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).

2021 NJIT Integrated Research Showcase WebEx Event Log-In Information for Attendees:

CONNECT with COMPUTER:
Click this link:
https://njit.webex.com/njit/onstage/g.php?MTID=ebf764c2768d547f59e4dbe5217c892a2

OR (alternatively)
Go to: njit.webex.com
Enter meeting number: 120 297 0264 Hit Enter.
Enter your name, email, and Event password: Meeting password: **NJIT** (all uppercase)
Click "Join Now"

CONNECT with TELEPHONE:
Call: 1-650-479-3207; Enter meeting number: 120 297 0264 followed by #
Then, for Attendee ID number, hit #

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

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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: **Scholarships in STEM Network (S-STEM-Net);** 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)

Department of Defense/US Army/DARPA/ONR: **Defense University Research Instrumentation Program (DURIP);** Waveform Agile RF Directed Energy (WARDEN); Science & Technology for Advanced Manufacturing Projects (STAMP)

Department of Transportation: **DDETFP Transportation Fellowship Program;** 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: **Advanced Manufacturing Project;** 2021 Build to Scale 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: **Request for Information (RFI): Increasing Data Center Energy Efficiency; ARPA-E OPEN 2021**

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; NIH-POCTRN Centers: Point-Of-Care Technology Research Program

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Recent Research Grant and Contract Awards

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

PI: Tara Alvarez (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: Afferent and Efferent Visual Systems During Abnormal Vision Development
Funding Agency: NIH
Duration: 04/01/20-12/31/21

PI: Michel Boufadel (PI)
Department: Center for Natural Resources
Grant/Contract Project Title: Dispersant Field Trials in High-Energy Canadian Marine Environment
Funding Agency: Department of Fisheries and Oceans (Canada)
Duration: 11/17/20-03/31/21

PI: Laurent Simon (PI)
Department: Chemical and Material Engineering
Grant/Contract Project Title: A Multiscale Physiologically-Based Pharmacokinetic to Stimulate Dermal Exposure to Chemical Warfare Agents
Funding Agency: U.S. Army (Army Research Office)
Duration: 03/08/21-03/27/24

PI: Kevin Belfield (PI)
Department: Office of the CSLA Dean; Chemistry and Environmental Sciences
Grant/Contract Project Title: AEOP High School Apprenticeships - REAP Funding Site Agreement FY21
Funding Agency: U.S. Army (AEOP)
Duration: 06/01/21-09/31/21

PI: Louis Lanzerotti (PI) and Andrew Gerrard (Co-PI)
Department: Center for Solar Terrestrial Research
Grant/Contract Project Title: Van Allen Probes RBSPICE Phase E Operations – Extended Missions I, II, III, and Phase F (ARDES)
Funding Agency: NASA
Duration: 07/15/16-05/11/21

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In the News…

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

Infrastructure Cybersecurity: The top White House cybersecurity official is working with the Securities and Exchange Commission, as well as the Environmental Protection Agency, the energy sector and industrial control system specialists on a plan to protect critical infrastructure. The operational technology, or OT, behind the systems that treat drinking water and run electric grids, subway systems and other essential services is a major source of concern as growing internet connectivity has increased their vulnerability to malicious hackers. Last month, an unidentified actor's attempt to manipulate the chemical content in a Florida water treatment plant to dangerous levels provided a prominent example of how poor visibility into systems can cause not just digital, but physical harms, of tremendous scale. "Because of the difference in mission impact, risks, threats and culture, a deliberate and specific OT cybersecurity approach is required to secure our industrial infrastructure," Anne Neuberger, deputy national security adviser for cyber and emerging technology, said. More information is posted on the NextGov website.

DARPA to Help 150 Research Teams Take Tech from Labs to Production: The Defense Advanced Research Projects Agency is formalizing and expanding a pilot program that connects its research teams to business expertise to help take technologies out of the lab and into production. In a partnership with nonprofit venture capital firm In-Q-Tel, the Embedded Entrepreneurship Initiative will provide 150 DARPA research teams with funds to hire business executives to develop go-to-market strategies, commercialization mentors and engagement with a DARPA working group stacked with corporate investors over the next five years.

The EEI pilot program kicked off two years ago because DARPA sees the development of its projects—for technologies like 5G and 6G telecommunications, infectious disease therapeutics and diagnostics, microelectronics, and artificial intelligence—as foundational for U.S. military and economic power in the next century, Kacy Gerst, DARPA's chief of commercial strategy, told *Nextgov*. The ultimate goal of the program is to help research teams create dual-use, go-to-market strategies for both defense and commercial markets. "More and more DARPA is investing in spaces that have a massive commercial market and a small defense market, like for example, microelectronics and biotechnology," Gerst said. "If we want the [Defense Department]DOD to be able to use these technologies in the future, they need to be sitting within sustainable businesses."

EEI targets two specific challenges related to development and adoption of these technologies, she said. DARPA research teams are technical, filled with skilled scientists and engineers focused on developing technology. Gerst said they often struggle to figure out how to take their technology to market because they lack business experience—as well as connection to investors.

The existence of foreign adversarial investments layers on top of this challenge. Gerst said foreign investors have been aggressively targeting early-stage research teams "often while they're still in the lab or the university" in order to gain access to the intellectual property. More information is posted on the NextGov website.

NIH Director on the Coronavirus Response: NIH received $1.15 billion allocation of funding to study the long-term COVID effects. NIH Director, Dr. Francis Colins said: "The cruelty of this virus seems to know no bounds. It's not bad enough that this virus is capable of infecting people so easily and even being spread by people who don't have symptoms, which makes it very hard to stop by public health measures. It's not bad enough that many of the people it affects are ill and those who already have chronic illnesses who come from groups with health disparities are hit hardest. Now it's even bad enough to cause some of the folks who get this illness not to get better as they expected in the two or three weeks most respiratory

viruses are limited by. Long COVID, or as we're calling it PACS, which stands for post acute sequelae of coronavirus, is a relatively common outcome and it doesn't even seem to be limited to people who were really sick with the acute illness. Even people who had relatively mild disease and didn't end up in the hospital, some of them just don't seem to be getting better and we don't know why. We don't seem to see evidence that the virus is still there in their system. But yet something about the virus' presence has triggered a long-term consequence, whether it's in blood clotting, or whether it's in the immune system."

"So we just announced a major $1.15 billion effort over the next four years to enroll at least 20,000 people who have had COVID-19 and to see what exactly happens and what are the triggers for this to last a long time? Who is most susceptible? And most importantly, how could we prevent it from happening? And how could we treat those people who are already suffering from long COVID? Right now, it's really a black box. We've got theories, but we need data to try to begin to sort this out. And so this involves no less than 20 of our 27 institutes. This is going to be all hands on deck in a pretty unprecedented large-scale cohort analysis to get answers to this vexing problem." More information is posted on the GovExecutive website.

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.

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Event: DEB Virtual Office Hour: Early Career Researchers
Sponsor: NSF
When: March 8, 2021 1:00 PM to 2:00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302208&org=NSF
Brief Description: Join us Monday, March 8th from 1-2PM EST for DEB's next Virtual Office Hour. Program Officers will provide information for Early Career Researchers. Representatives from each DEB cluster will be available for questions.
To Join the Webinar: REGISTER HERE

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: Mining the Mind: CRISPR-based genome-wide screens in iPSC-derived brain-disease models
Sponsor: Science, AAAS
When: March 10, 2021, 12.00 PM – 1.00 PM
Website:
https://view6.workcast.net/register?cpak=7110212349218868&referrer=Blast3a&et_rid=79350415&et_cid=3687590
Brief Description: Human genes associated with brain-related diseases are being discovered at an accelerating pace. A major challenge is to identify the mechanisms of action for these genes, and to determine potential therapeutic strategies. To elucidate these mechanisms in human cells, we established a CRISPR-based platform for genome-wide screens in human induced pluripotent stem cell (iPSC)-

derived neurons, glia, and multi-lineage assembloids. Complex libraries of single-guide RNAs (sgRNAs) enable us to conduct genome-wide or focused loss-of-function (CRISPR interference, or CRISPRi) and gain-of-function screens (CRISPR activation, or CRISPRa). Such screens can reveal molecular players for phenotypes based on survival, stress resistance, fluorescent phenotypes, high-content imaging, and single-cell RNA-Seq. To uncover disease mechanisms and therapeutic targets, we are conducting genetic modifier screens for disease-relevant cellular phenotypes in patient-derived neurons and glia with familial mutations and isogenic controls. CRISPRi/a can also be used to model and functionally evaluate disease-associated changes in gene expression, such as those caused by expression quantitative trait locis (eQTLs), haploinsufficiency, or disease states of brain cells.

To Join the Webinar: Register using the above URL.

Event: MCB Virtual Office Hour: Working with an NSF Program Officer
Sponsor: NSF
When: March 10, 2021 2:00 PM to 3:00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302207&org=NSF
Brief Description: Join us for our virtual office hour to learn about working with an NSF Program Officer at the National Science Foundation and the Division of Molecular and Cellular Biosciences (MCB)! On Wednesday, March 10 from 2-3pm EST, we will discuss "Working with an NSF Program Officer," followed by an open Q&A session. Questions should be broad and of potential interest to others.
To Join the Webinar: Please use this registration page to join us. Visit the MCB Blog to view upcoming office hour dates and topics as well as previous office hour presentations. The webinar presentation will also be available on this webpage.

Event: Webinar: Understanding the Rules of Life: Emerging Networks (URoL:EN) Solicitation
Sponsor: NSF
When: March 11, 2021 2:00 PM to 3:00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302216&org=NSF
Brief Description: Join us Thursday, March 11th from 2pm-3pm EST for a webinar on the new solicitation, Understanding the Rules of Life: Emerging Networks (URoL:EN, NSF 21-560). Program Officers will provide an introduction to the new cross-Directorate solicitation and representatives from the program will be available for questions.

As part of the *Understanding the Rules of Life: Predicting Phenotype*, one of ten "Big Ideas" NSF-wide, this new solicitation builds on previous URoL programs to help increase knowledge and the ability to predict an organism's observable characteristics—its phenotype—from its genotype. Understanding the mechanisms at play in the interconnections between living organisms and their environments, across every biological scale, will provide vital insight into grand biological challenges, help advance biotechnology to spur the US bioeconomy, and aid in solving some of society's issues, including the growing impacts of infectious disease and climate change. Investigators from across the biological sciences are encouraged to submit proposals in concert with researchers in other disciplines, including the mathematical and physical sciences, geosciences, computer and information sciences, engineering, and behavioral and social sciences.
To Join the Webinar: REGISTER HERE

Event: Genomics Data Transfer and Storage in the Cloud
Sponsor: Amazon AWS
When: March 18, 2021, 9.00 AM – 10.00 AM
Website:

Brief Description: Genomics research is data intensive. As genomics sequencing gets less expensive, the volume and velocity of data becomes harder to manage and store while still offering rapid and secure access. As such, there is increasing need to provide a single source of truth to democratized data for scalable compute and analysis. Join this talk to hear how organizations can take advantage of high-throughput data ingestion, cost-effective storage options, secure access, and application of Findable, Accessible, Interoperable, Reusable (FAIR) data principles to propel genomics research forward.
To Join the Webinar: Register at Webinar URL.

Event: DMS Virtual Office Hours
Sponsor: NSF
When: March 22, 2021 3:00 PM to 4:00 PM
Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=302227&org=NSF
Brief Description: The Division of Mathematical Sciences (DMS) is hosting virtual office hours to share information about NSF's current operations and to provide guidance to the mathematical sciences community. All members of the mathematical sciences research community interested in the work of DMS are welcome to attend. Virtual office hours are held at roughly monthly intervals; topics vary. The event will be in the form of a webinar, starting with a brief presentation of selected current topics, with DMS program directors available to answer questions from the community.
To Join the Webinar: Participants should register (and may do so in advance) at the web page
https://nsf.zoomgov.com/webinar/register/WN_xltqtjhmRt6RnFg3ehMshA

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.

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Grant Opportunities

National Science Foundation

Grant Program: Scholarships in STEM Network (S-STEM-Net) — S-STEM Resource and Evaluation Center and S-STEM Research Hubs
Agency: National Science Foundation NSF 21-569
RFP Website: https://www.nsf.gov/pubs/2021/nsf21569/nsf21569.htm
Brief Description: Through this solicitation, NSF seeks to foster a network of S-STEM stakeholders and further develop the infrastructure needed to generate and disseminate new knowledge, successful practices and effective design principles arising from NSF S-STEM projects nationwide. The ultimate vision of the legislation governing the S-STEM parent program[1] (and of the current S-STEM-Net solicitation) is that all Americans, regardless of economic status, should be able to contribute to the American innovation economy if they so desire.
To support collaboration within the S-STEM network, NSF will fund two types of investments: An S-STEM Resource and Evaluation Center (S-STEM-REC) and several S-STEM Research Hubs (S-STEM-Hub). The S-STEM Network (S-STEM-Net) will collaborate to create synergies and sustain a robust national ecosystem consisting of multi-sector partners supporting domestic low-income STEM students in achieving their career goals, while also ensuring access, inclusion, and adaptability to changing learning needs. This network will also synthesize current achievements and investigate evolving barriers to the

success of this student population. It will also disseminate the context and circumstances by which interventions and practices that support graduation of domestic low-income students pursuing careers in STEM are successful.

The target audience for this dissemination effort is the community of higher education institutions, faculty, scholars, researchers and evaluators, local and regional organizations, industry, and other nonprofit, federal, state, and local agencies concerned with the success of domestic low-income STEM students in the United States.

Awards: Standard Grant or Cooperative Agreement; Anticipated Funding Amount: $45,000,000

S-STEM-REC – one award, as a cooperative agreement.

S-STEM-Hub – up to 10 awards, as standard grants.

Letters of Intent: Required by April 16, 2021

Proposal Submission Deadline: June 16, 2021

Contacts: Alexandra Medina-Borja, Lead, telephone: (703) 292-7557, email: amedinab@nsf.gov

- Thomas D. Kim, Co-Lead, telephone: (703) 292-4458, email: tkim@nsf.gov
- Michael J. Ferrara, Co-Lead, telephone: (703) 292-2635, email: mferrara@nsf.gov

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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.
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.

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

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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:

- o training and activities with a defined goal and within a thematic area that will add depth and breadth to the trainees' scientific development
- o 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)
- o effective oversight of trainee mentoring and progression to the next career stage
- o an environment that promotes the success of individuals with a wide variety of backgrounds and perspectives
- o direct access to an appropriate diversity of role models, both within the institution and through activities such as invited seminars.
- o activities for trainees to develop oral and written skills for communicating their science to a wide variety of audiences
- o 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:

- o A broad understanding across biomedical disciplines and the skills to independently acquire the knowledge needed to advance their chosen fields;
- o 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;
- o A strong foundation in scientific reasoning, rigorous research design, experimental methods, quantitative and computational approaches, and data analysis and interpretation;
- o The skills to conduct research in the safest manner possible, and a commitment to approaching and conducting biomedical research responsibly, ethically, and with integrity;
- o Experience initiating, conducting, interpreting, and presenting rigorous and reproducible biomedical research with increasing self-direction;

- o 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;
- o 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
- o 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

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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-21-146.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:

- o A broad understanding across biomedical disciplines and the skills to independently acquire the knowledge needed to advance their chosen fields;
- o 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;
- o A strong foundation in scientific reasoning, rigorous research design, experimental methods, quantitative and computational approaches, and data analysis and interpretation;
- o The skills to conduct research in the safest manner possible, and a commitment to approaching and conducting biomedical research responsibly, ethically, and with integrity;
- o 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

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

Grant Program: 2022 Defense University Research Instrumentation Program (DURIP)
Agency: Department of Defense DARPA
DURIP - ARMY SUBMISSION Dept of the Army -- Materiel Command W911NF-21-S-0004
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331862
Other Related DURIP Opportunities:
Air Force Office of Scientific Research FOA-AFRL-AFOSR-2021-0002
Office of Naval Research N00014-21-S-F002
Brief Description: The Department of Defense (DoD) announces the Fiscal Year 2020 Defense University Research Instrumentation Program (DURIP). DURIP is designed to improve the capabilities of accredited United States (U.S.) institutions of higher education to conduct research and to educate scientists and engineers in areas important to national defense, by providing funds for the acquisition of research equipment or instrumentation. For-profit organizations are not eligible for DURIP funding. We refer to eligible institutions of higher education as universities in the rest of this announcement. DURIP is part of the University Research Initiative (URI).
Awards: Amount of Requested DoD Funding – $50,000 to $1,500,000
Letter of Intent: Please see below.
Proposal Deadline: May 14, 2021 at 11:59 PM
Pre-proposal inquiries and questions must be submitted not later than Friday, April 23, 2021.
Contact Information: Anastasia Lenfest, Grants Officer, Phone 7035882866
anastasia.lenfest@navy.mil

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: 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

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Department of Transportation

Grant Program: Dwight David Eisenhower Transportation Fellowship Program (DDETFP) Graduate Fellowship
Agency: Department of Transportation 693JJ318NF5227-2021
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331800
Brief Description: The goals of these Grants are to provide DDETFP Graduate Fellowships to 1) attract the Nation's brightest minds to the field of transportation, 2) enhance the careers of transportation professionals by encouraging them to seek advanced degrees, and 3) bring and retain top talent in the transportation industry of the U.S.

Individual students apply for the DDETFP Graduate Fellowship. The FHWA makes awards to the Institution of Higher Education (IHE) ("Recipient") on behalf of the student ("Student Designee"). The IHE must be accredited by a federally-recognized accrediting agency and must be located within the United States or its Territories. If a student is selected to receive a fellowship, the student, their faculty

advisor, and the IHE will be responsible for completing and submitting all required paperwork to execute the Agreement. Students must be prepared to submit a copy of their application package and this Notice of Funding Opportunity (NOFO) to their IHE. The Recipient will be responsible for allocating funds to the Student Designee as outlined in the Budget of the Agreement. The IHE will also be responsible for submitting all required Federal financial reports to FHWA.

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

Letter of Intent: Not Required

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

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

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

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Department of Agriculture:

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](#)

Grant Program: Agriculture and Food Research Initiative - Foundational and Applied Science
Agency: Department of Agriculture USDA-NIFA-AFRI-007692
Website: https://nifa.usda.gov/funding-opportunity/agriculture-and-food-research-initiative-foundational-applied-science-program
Brief Description: The AFRI Foundational and Applied Science Program supports grants in six AFRI priority areas to advance knowledge in both fundamental and applied sciences important to agriculture. The six priority areas are: Plant Health and Production and Plant Products; Animal Health and Production and Animal Products; Food Safety, Nutrition, and Health; Bioenergy, Natural Resources, and Environment; Agriculture Systems and Technology; and Agriculture Economics and Rural Communities. Research-only, extension-only, and integrated research, education and/or extension projects are solicited in this Request for Applications (RFA). See Foundational and Applied Science RFA for specific details.
Letter of Intent: Required.
Awards: Up to $15,000,000; Anticipated available funding: $290,000,000
Proposal Deadline: Thursday, July 29, 2021
Contact Information: [AFRI Coordination Team](#)

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[Department of Labor](#)

Grant Program: State Apprenticeship Expansion, Equity and Innovation (SAEEI) Grant Program
Agency: Department of Labor FOA-ETA-21-07
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331689
Brief Description: The SAEEI Funding Opportunity Announcement FOA will provide up to $87.5 million in grant awards to support the expansion and diversification of Registered Apprenticeship Programs (RAPs), 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

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Department of Commerce/EDA

Grant Program: Advanced Manufacturing Project
Agency: U.S. Department of Commerce MBDA-OBD-2021-2006811
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331880
Brief Description: This notice requests applications for programs aligned with the Minority Business Development Agency's (MBDA) strategic plans and mission goals to service minority business enterprises (MBE's). This notice also provides the public with information and guidelines on how MBDA will select proposals and administer discretionary Federal assistance under this Notice of Funding Opportunity (NOFO).
Awards: MBDA expects to expend approximately $1,600,000 in fiscal year (FY) 2021 funds for the financial assistance awards under this Announcement.
Letter of Intent: Contact the program director.
Proposal Deadline: April 8, 2021
Contact Information: Nakita Chambers 202-482-0065 1401 Constitution Ave., NW, Washington, DC 20230 Work

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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

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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: 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

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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

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Grant Program: Request for Information (RFI): Increasing Data Center Energy Efficiency
Agency: Department of Energy DE-FOA-0002495
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=331849
Brief Description: The purpose of this RFI is to solicit input for a potential future ARPA-E research program focused on novel, potentially transformative technical opportunities, and approaches to increase the energy efficiency of data centers.

Online services and online data use have grown exponentially for years and is expected to grow even more so in the upcoming years due to growing trends such as virtual online meetings, artificial intelligence, machine learning, machine vision, and augmented reality. Recent indications also illustrate that we are on the precipice of accelerated machine-to-machine communication also known as Internet of Things (IOT) as cars, aircraft, industrial machines, and household devices will start gathering and communicating data for their operations. These virtual communications occur on an infrastructure supported by millions of servers that are hosted in data centers.

Data centers exist in a variety of sizes and operational models ranging from enterprise, co-location to hyperscale data centers. It is projected that current U.S. data centers consume in excess of 75 billion kWh electricity annually3 and that innovative technologies such as advances in semiconductors, virtualization and economization have contributed to a relatively modest increase in energy usage compared to the 550% growth in compute instances over the past decade. However, the semiconductor transistor scaling trend which consistently delivered operational energy savings during this time period, or "Moore's law", reached an inflection point in 2016, and it is therefore expected that data center energy usage will rise as future data communications demand is expected to grow exponentially. The goal of the potential program is to support transformational technologies that can increase the energy efficiency of current and future data centers over as wide an application range as possible. Examples of potential areas of interest are disruptive innovations in efficient and reliable power supply, data processing, thermal management, server, rack, or building designs. These technologies could be developed as stand-alone component innovations or be considered as part of system-level approaches that span multiple component innovations as a system.
Awards: THIS IS A REQUEST FOR INFORMATION ONLY.
Letter of Intent: Please see below.
Submission Deadline: The information you provide may be used by ARPA-E in support of program planning. THIS IS A REQUEST FOR INFORMATION ONLY. THIS NOTICE DOES NOT CONSTITUTE A FUNDING OPPORTUNITY ANNOUNCEMENT (FOA). NO FOA EXISTS AT THIS TIME. To view the RFI in its entirety, please visit https://arpa-e-foa.energy.gov.
Contact: ARPA-E CO

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.

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NASA

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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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

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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]()

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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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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

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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

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Proposal Submission and Streamlyne Information
Internal Timeline for Successful and Timely Proposal Submission

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

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

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