

NJIT Research Newsletter

Issue: ORN-2018-34

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

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Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: Collaborative Research in Computational Neuroscience (CRCNS) Innovative Approaches to Science and Engineering Research on Brain Function; NSF/Intel Partnership on Foundational Microarchitecture Research (FoMR); Instrument Capacity for Biological Research (ICBR); Cyberinfrastructure for Biological Research (CIBR); Division of Environmental Biology (DEB) Core Programs; Division of Integrative Organismal Systems Core Programs; Division of Molecular and Cellular Biosciences: Investigator-initiated research projects (MCB); SBE Postdoctoral Research Fellowships (SPRF), Improving Undergraduate STEM Education: Pathways into Geoscience (IUSE: GEOPATHS)

NIH: BRAIN Initiative: Team-Research BRAIN Circuit Programs - TeamBCP (U19); NLM Research Grants in Biomedical Informatics and Data Science (R01); BRAIN Initiative: Research Opportunities Using Invasive Neural Recording and Stimulating Technologies in the Human Brain (U01); Virtual Consortium for Translational/Transdisciplinary Environmental Research (ViCTER) (R01); Virtual Consortium for Translational/Transdisciplinary Environmental Research (ViCTER) (R01); BRAIN Initiative: Development of Novel Tools to Probe Cell-Specific and Circuit-Specific Processes in Human and Non-Human Primate Brain (UG3/UH3); Regenerative Medicine Innovation Project (RMIP) Investigator-Initiated Studies (U01); Short-term Mentored Career Enhancement Awards in Mobile and Wireless Health Technology and Data Analytics: Cross-Training at the intersection of Behavioral and Social Sciences and STEM Disciplines (K18)

Department of Defense/US Army/DARPA/ONR: Complex Traumatic Brain Injury Rehabilitation Research Clinical Research Award; Young Faculty Award, DoD Accelerating Innovation in Military Medicine Research Award; BROAD AGENCY ANNOUNCEMENT (BAA) for Extramural Biomedical Research and Development; NRL Long Range Broad Agency Announcement (BAA) for Basic and Applied Research

Department of Education: Institute of Education Sciences (IES)

EPA: Practical Methods to Analyze and Treat Emerging Contaminants (PFAS) in Solid Waste, Landfills, Wastewater/Leachates, Soils, and Groundwater to Protect Human Health and the Environment

Department of Energy: Advanced Solar Systems Integration Technologies Notice of Intent (NOI); Support Grants for Participation in ARPA-E Grid Optimization (GO) Competition Challenge ; Machine Learning for Geothermal Energy; Integrated University Program (IUP)

NASA: ROSES 2018: Cassini Data Analysis Program: PDS Cassini Data Release 54; ROSES 2018: DSCOV Science Team

National Endowment of Humanities: Humanities Connections Implementation Grants

Michael J. Fox Foundation: Research and Open Innovation

ACI Foundation: Concrete Research

Samsung: Samsung Global Research Outreach Program (GRO)

Simons Foundation: Simons Investigator program in the Mathematical Modeling of Living Systems (MMLS); Simons Foundation Fellowships in Math and Theoretical Physics

Whitehall Foundation: Research Grants in Neurology

BrightFocus Foundation: Alzheimer's Disease Research Program; Macular Degeneration Research Program; National Glaucoma Research Program

Special Announcement

Got an idea for science and engineering research?

Send it to the NSF 2026 Idea Machine

NSF opens 8-week competition starting Aug. 31

If you've ever had an idea about how the National Science Foundation (NSF) could transform fundamental research, a huge window of opportunity is about to open. From Aug. 31, 2018 through Oct. 26, 2018, the foundation will open the entry window for its first-ever NSF 2026 Idea Machine, a competition that gives entrants a chance to help inform the agenda for basic research, through the Nation's 250th anniversary in 2026 and beyond.

NSF is looking for fresh ideas -- large in scope and different from what the foundation already does. These ideas should address compelling challenges in science, technology, engineering and mathematics (STEM). On Aug. 31, the [NSF 2026 Idea Machine website](#) will be updated with full rules and guidelines, and a portal for submitting entries. [NSF 2026](#) is one of the agency's [10 Big Ideas for Future NSF Investments](#).

How big can your proposed idea be? NSF wants ideas for broad areas of research that would require a long-term commitment -- 10 years or more -- and potentially transform a research area through new explorations and creative inquiry.

A submission to the Idea Machine should be ambitious. It should be an idea that contributes to NSF's mission to support basic research in a way that ultimately fuels the nation's economy, enhances its security and sustains U.S. global leadership in science and engineering. Progress toward addressing research in that area should have a significant impact on science and society.

"Scientific creativity and innovation have no bounds. Everyone in the scientific community, from middle schoolers to emeriti professors, as well as anyone who loves science in the general public have ideas about the future and what might be possible," said Suzi Iacono, head of NSF's Office of Integrative Activities. "We want to harness those rich imaginations through an approach that's totally new for NSF, but also in keeping with our tradition of reaching out into the community to find fresh, new ideas that have the potential to benefit science and society."

NSF's goal is to select two to four winning entries from the Idea Machine. Winning entries will receive \$26,000 and their authors will be honored at an event in Washington, D.C. But the real prize is the opportunity to promote the progress of science and engineering by helping NSF identify a new area of research. NSF could use winning entries from the Idea Machine to help shape programs, or research agendas -- perhaps becoming the next [Big Idea](#) in need of long-term investment by the foundation.

For 70 years, NSF has kept an eye on the future, envisioning new research directions. The Idea Machine is yet another example of NSF looking for innovative ideas wherever they might exist. The Idea Machine also reflects NSF's goal of broadening participation in STEM -- the idea that bringing in new people and viewpoints benefits the entire scientific ecosystem. Once the window for entries closes on Oct. 26, NSF staff will screen and judge entries. For the most promising entries, NSF will invite submitters to provide video pitches, posting them online for public comment in early 2019. NSF will convene a blue-ribbon panel of judges to conduct interviews with finalists and will plan to announce winners and award prizes in the summer of 2019.

See the [NSF 2026 Idea Machine website](#), where the details, rules and eligibility requirements will be posted Aug. 31, 2018.

Have a great technology concept?

Need funds to explore the commercialization pathways?

Apply for an NJIT – I-Corps Site Mini-Grant

<https://judithsheft.wufoo.com/forms/qalwq491kii3tv/>

NJIT has been designated as an NSF I-Corps Site and through the NJIT School of Management and NJ Center for Innovation Acceleration, we will provide specialized training and mini grants of up to \$3,000 to teams interested in exploring the commercial viability of their ideas for products and businesses that are based on their own inventions or NJIT intellectual property.

Do you have an exciting technology that works in the lab? Would you like help to start a company to commercialize the technology? Do you want to test a prototype in the real-world environment?

What are the benefits?

Learn the lean start up methodology – an approach that has significant advantages over traditional business planning / new product development approaches.

Get out of the building and spend the majority of your time talking to potential customers to discover how your technology could effectively ‘solve’ customers’ unmet needs or pain points

Make connections with experienced entrepreneurs and investors that can lead to potential follow-on support or collaboration

Who is eligible?

I-Corps mini grants are available to teams made up NJIT students and faculty. Each team must have:

- an entrepreneurial lead(typically an NJIT undergraduate or graduate student(s))
- an academic lead researcher/advisor (faculty member)
- a business mentor with significant entrepreneurial business experience.

The NJIT I-Corps Program Managers (Dr. Michael Ehrlich and Ms. Judith Sheft) will provide assistance to complete teams as necessary. You must have at least 2 teams members identified to apply.

All team members must be able to participate for the 6 month project duration.

DEADLINES:

Deadline for Submissions: September 26, 2018

Interviews of Finalists: October 1 - 5, 2018

Announcement of Awards – October 10, 2018

Mandatory Team Orientation – October 24, 2018 (Common Hour)

Other Mandatory Sessions: November 28, 2018 / January 30, March 20 2019

Final Report Due: March 20, 2019

QUESTIONS: PLEASE CONTACT:

Dr. Michael Ehrlich – NJIT School of Management and Co-Director of the NJ Innovation Acceleration Center - ehrllich@njit.edu

Judith Sheft Co- Director of the NJ Innovation Acceleration Center - sheft@njit.edu

Institutional Review Board (IRB) Update

on the

Use of Human Subjects in Research

Under a Federal wide Assurance with the United States Department of Health and Human Services, all research involving human subjects performed by NJIT faculty, staff, and students either on-campus or off-campus, including at other institutions, must be reviewed and approved prior to initiation by the NJIT Institutional Review Board (IRB). According to the United States Department of Health and Human Services:

- Research is defined as systematic investigation, including research development, testing and evaluation, designed to develop or contribute to new knowledge.
- Human Subjects are living individuals about whom an investigator conducting research obtains (1) data from an intervention or interaction with the individual, or (2) identifiable information.

Continuing Review (“Renewal”)

As mandated by federal law, researchers must secure the IRB approval for all human subjects related scientific studies. Research plans must be subject to continuing review (“renewal”) no less than once per year (“expiration date”). Researchers are responsible for applying for renewal status at least a week in advance of the last IRB meeting before the expiration date (published in the IRB website) so as to allow the IRB to review and approve the renewal before the expiration date. If a research plan’s approval expires before the IRB completes its review, the researcher must stop all research procedures. The IRB has no legal authority to, and will not, retroactively approve any research plan. When stopping the research could place human subjects at risk, the researcher should contact the IRB immediately to obtain approval to continue treating subjects on that study.

Pending Status for Research Proposals

Funding agencies often require research plans to be submitted for IRB approval prior to the proposal submission date, and to state the “pending approval” in the proposal. In these cases, researchers must secure a “pending status” before the proposal submission. The IRB has no legal authority to, and will not, date a research plan submission prior to the actual submission date to the IRB.

Non-Research Activities Involving Human Subjects

Activities that involve human subjects, which are not research activities as defined by the Code of Federal Regulations are not subject to IRB scrutiny (the IRB has no jurisdiction over them). Therefore, they require no review by the IRB.

Note that this is different from an exemption, which, under certain circumstances, applies to research activities involving human subjects.

The definition of research given in the Code of Federal Regulations is "*Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program which is considered research for other purposes.*"

Proposals involving an educational component often require the assessment of the proposed activities, and they do not meet the definition of research (in much the same way as the course evaluations are routinely carried out every semester are not considered research). If this is the case, the educational plan does not require IRB review. If, at any point in time, the PI decides to change the project description in this regard in any way that transforms the proposed activities into research, then the PI should contact the IRB and apply for IRB approval.

Call For Proposals

NJIT Faculty Seed Grant Awards – 2018-19

Proposal Submission Deadline to College/School Dean: September 5, 2018

Purpose:

NJIT “2020 Vision” strategic plan targets on substantial increase in academic research and external funding with faculty and student professional development. The purpose of the NJIT Faculty Seed Grant (FSG) initiative is to promote academic research in the core and interdisciplinary areas by providing seed funding to obtain preliminary results or establish hypotheses for developing future grant proposals for submission to external funding agencies. The FSG initiative specifically seeks seed funding proposals from faculty to launch new initiatives in core and interdisciplinary emerging areas aligned with NJIT strategic tactics to develop critical research mass.

Eligibility and Type of Awards:

NJIT full-time faculty with specific research initiative to enhance the critical mass in key and emerging areas may apply to FSG program for internal funding with a budget of \$7500 per project over the FY18 ending June 30, 2018. Multidisciplinary projects with strong recommendation and justification from College/School Dean will be considered at the funding level of \$10,000 subject to availability of funds.

It is expected that about 20 FSG awards will be made this year. Funding is arranged through the Offices of Research and College/School Deans.

Recipients of FSG as lead faculty are not eligible to receive another FSG award as lead faculty within three years from the last FSG award. Projects funded by FSG are not eligible to receive another FSG as the intent of internal seed funding is to facilitate initial research towards obtaining external funds to pursue research.

Allowable Expenses include Project supplies and small equipment, travel to conferences and/or funding agencies, travel expenses for funding agency people to visit NJIT, student hourly wages. Faculty summer salary, AY release and any stipend are not permitted in the budget.

Deadlines:

CFP Announcement: June 1, 2018

FSG Proposal Due in the Office of College/School Dean: September 5, 2018

College/School Dean Recommendations to Office of Research: September 15, 2018

Institutional Review and Announcement of Awards: September 21, 2018

Period of Award: October 1, 2017– June 30, 2018 (no extension will be available)

Review Process and Criterion:

All Proposals will be reviewed within the College/School to which PI is affiliated. College/School Dean will make the recommendation of top ranked proposals based on the reviews from the College/School review committee, which will be forwarded to the Office of Research for further review and discussion with Deans leading to the announcement of awards.

Review criterion primarily includes the scientific merit of the proposal, and potential of external funding. Additional criterion includes significance of project goals, fit to the NJIT strategic research clusters and emerging trends towards developing critical mass in key areas, justification of internal funding, expected outcomes, and faculty expertise.

Other Requirements: Faculty receiving FSG awards will submit a full proposal to external funding agencies within six months from the end date of the award. They will also participate in the NJIT Faculty Research Showcase and Panel Discussion events in Spring semester.

Required FSG Proposal Format:

The main proposal (sections 2-7 in the required FSG proposal format below) is limited to 5 pages with single spaced 12 point font size. The page limit does not include the cover sheet, budget and budget justification (maximum one page) and list of references (maximum one page). In addition up to 2 pages of biographical sketch and 1 page of current and pending support are required for PI and each investigator. Please see the proposal format guidelines below.

The main proposal should have the following sections:

1. Cover Sheet:

- Title of the Project
- Principal and Co-Principal Investigators
- Department
- College
- Date Submitted
- PI and Co-PI (if multiple investigators) Signatures

2. Abstract (Maximum 250 words; Non-IP for public dissemination):

(Please summarize briefly on):

- a. Project Goal(s)
- b. Significance

- c. Expected Outcomes
- d. Justification of Internal Funding
- 3. Specific Objectives
- 4. Methods and Procedures
- 5. Evaluation and Deliverables
- 6. Future Plans
 - (Describe how the project funding with the deliverables will help in future proposal submissions, enhancing the research synergy, and obtaining external funds)
- 7. Justification of Internal Funding
 - (Describe what other funds are available and why additional internal funding is needed)
- 8. Budget and Budget Justification (maximum 1 page)
- 9. References (maximum 1 page)
- 10. Appendix (for PI and each Co-PI/Investigator):
 - a. PI Biographical Sketch (NSF/NIH or Federal Agency Format; maximum 2 pages per investigator)
 - b. Other Grant Support (maximum 1 page per investigator; summarize specific project goal(s) for each grant and any overlap with this proposal)

Recent Research Grant and Contract Awards

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

PI: Dale Gary (Co-PI), Gregory Fleishman (PI), Gelu Nita (Co-PI)

Department: Center for Solar Terrestrial Research

Grant/Contract Project Title: Dynamics of Solar Flares: Combining NASA Space Data with Microwave Imaging Spectroscopy

Funding Agency: NASA

Duration: 06/26/18-06/25/21

PI: Xianqin Wang (PI)

Department: Chemical and Material Engineering

Grant/Contract Project Title: Mechanistic Study of N₈- Polynitrogen Synthesis and its Oxygen Reduction Reaction

Funding Agency: NSF

Duration: 09/01/18-08/31/21

PI: Colette Santasieri (PI) and Darius Sollohub (Co-PI)

Department: Technology and Business Development

Grant/Contract Project Title: Newark Airport City Aerotropolis (NACA)

Funding Agency: Prudential Foundation

Duration: 05/01/18-01/31/19

PI: Ioannis Koutis (PI)

Department: Computer Science

Grant/Contract Project Title: CCF-BSF: AF: Small: Collaborative Research: Practice-Friendly Theory and Algorithms for Linear Regression Problems

Funding Agency: NSF

Duration: 10/01/18-09/30/21

PI: Simon Garnier (PI) and Jason Graham (Co-PI)

Department: Biology

Grant/Contract Project Title: Encouraging Data Sharing and Reuse in the Field of Collective Behavior through Hackathon-Style Collaborative Workshops

Funding Agency: NSF

Duration: 10/01/18-09/30/20

PI: Alexander Haimovich (PI) and Osvaldo Simeone (Co-PI)

Department: Electrical and Computer Engineering

Grant/Contract Project Title: Noise Waveforms for Next Generation Fuze RADAR

Funding Agency: US ARMY DOTC

Duration: 08/15/17-10/20/20

In the News...

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

CLIMATE FIGHT IN THE BACKGROUND AS ENERGY CONFEREES MEET: Senate Majority Leader Mitch McConnell (R-Ky.) says a House-Senate conference could approve the combined [Energy-Water, Legislative Branch and Military Construction-VA spending package](#) as soon as next week, according to CQ. The measure would fund the Department of Energy and U.S. Army Corps of Engineers, among other agencies. When the House took it up in June, Rep. Nita Lowey of New York, ranking Democrat on Appropriations, complained that "Republicans are using America's veterans as pawns to force through cuts to clean energy research and harmful policy provisions that weaken environmental safeguards. . . . With regard to the Energy and Water bill specifically, we are confronted with a partisan bill that contains cuts to many important priorities," including energy efficiency and renewable energy initiatives and "transformational science efforts, such as the successful and popular ARPA-E program." The Bill Provides appropriations to the Department of Energy (DOE) for Energy Programs, including:

- Energy Efficiency and Renewable Energy;
- Cyber Security, Energy Security, and Emergency Response;
- Electricity Delivery;
- Nuclear Energy;
- Fossil Energy Research and Development;
- Naval Petroleum and Oil Shale Reserves;
- the Strategic Petroleum Reserve (SPR);
- the SPR Petroleum Account;
- the Northeast Home Heating Oil Reserve;
- the Energy Information Administration;
- Non-Defense Environmental Cleanup;
- the Uranium Enrichment Decontamination and Decommissioning Fund;
- Science;
- Nuclear Waste Disposal;
- Advanced Research Projects Agency--Energy

Recording the Brain: The National Institutes of Health want "diverse interdisciplinary research teams that integrate theoretical models with innovative neurotechnologies for recording and manipulating neural circuits across multiple brain regions and scales. Studies of complex behaviors, including behavioral assays of freely-moving animals and objective measures of cognitive/perceptual processes, are encouraged. . . . The goal will be (to) realize meaningful outcomes within 5 and more years." See the [Request for Applications](https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-19-003.html) on <https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-19-003.html>

INTERNSHIPS in All Sectors': The National Science Foundation plans to fund grad students in non-academic internships that "support career opportunities in any sector of the U.S. economy." NSF says that besides "deep and broad preparation in their technical areas of expertise, skills and knowledge regarding communication, innovation and entrepreneurship, leadership and management, and policy and outreach are becoming increasingly valuable to enter any sector of the workforce." See the Deal; Colleague Letter: Non-Academic Research Internships for Graduate Students (INTERN) Supplemental Funding Opportunity on <https://www.nsf.gov/pubs/2018/nsf18102/nsf18102.jsp?org=NSF>

Sustaining MOORE'S Law Trends: NSF seeks "innovations beyond simplistic, incremental scaling of the existing microarchitectural structures" -- specifically "high IPC techniques ranging from microarchitecture to code generation; 'microarchitecture turbo' techniques that marshal chip resources and system memory bandwidth to accelerate sequential or single-threaded programs; and techniques to support efficient compiler code generation. Success in this area promises to provide significant performance improvements that continue the trends characterized by Moore's Law." See the NSF 18-588 RFP NSF/Intel Partnership on Foundational Microarchitecture Research (FoMR) on https://www.nsf.gov/pubs/2018/nsf18588/nsf18588.htm?org=NSF#pgm_intr_txt

HUGE SPENDING BILL HEADS TO HOUSE-SENATE CONFERENCE: The Senate on Thursday overwhelmingly passed an \$857 billion spending package that Republican leaders are counting on to convince President Donald Trump to back down from threats of a government shutdown in September. The bill funds the departments of Defense, Health and Human Services (including the National Institutes of Health) Labor, and Education. The Senate's bill would deliver a \$20.4 billion increase for the Pentagon, lifting its budget to a near-historic high. HHS would see a \$2.3 billion boost, including a 5.4 percent increase for the National Institutes of Health. Education programs would get a \$541 million boost, while the Labor Department's budget would remain flat. Among provisions drawing praise on the Senate floor was \$2 billion for Alzheimer's research. The package realizes the goals of the bipartisan budget agreement reached in February by making significant new investments over fiscal year 2017 funding levels to improve the lives of the American people, including:

- \$5 billion over fiscal year 2017 for the National Institutes of Health;
- \$3.2 billion over fiscal year 2017 for Child Care Development Block Grants;
- \$3 billion over fiscal year 2017 to combat the opioid crisis; and
- \$2.3 billion over fiscal year 2017 to increase college affordability.

More information is posted on the website <https://www.politico.com/story/2018/08/23/senate-spending-package-shutdown-750805>.

DOE Graduate Research Awards: The Department of Energy "provides supplemental awards to outstanding U.S. graduate students to pursue part of their graduate thesis research at a DOE laboratory/facility in areas that address scientific challenges central to the Office of Science

mission. The research opportunity is expected to advance the graduate students' overall doctoral thesis while providing access to the expertise, resources, and capabilities available at the DOE laboratories/facilities." The program is now accepting applications. More information about the DOE Office of Science Graduate Student Research (SCGSR) Program is posted on the website <https://science.energy.gov/wdts/scgsr/>

NSF Implements 10 Big Ideas Plan for Transformative Research: NSF's strategic plan for FY 2018-2022 emphasizes on innovative and transformative research in many areas from transportation to manufacturing and agriculture. From the NSF strategic plan 2018-2022 (<https://www.nsf.gov/pubs/2018/nsf18045/nsf18045.pdf>): "Scientific breakthroughs start with a question, a big idea, about the nature of things that often leads to a fundamental shift in thinking. The ability to pursue and investigate that question, and to innovate along the way, is what enables the discoveries that ultimately transform the world. This plan illustrates the opportunities ahead with examples from some of NSF's "10 Big Ideas" for future investment. These bold, long-term research questions consider critical societal challenges and important lines of scientific inquiry where NSF aims to catalyze new breakthroughs. Partnerships with other federal agencies, nonprofits, private-sector collaborators, industry partners and the public will help advance these research areas. This plan also underscores where greater investments are needed; for example, in research infrastructure and broadening participation in the science, technology, engineering and mathematics (STEM) workforce. As highlighted in the 2018 Science and Engineering Indicators report, the number of non-STEM jobs requiring STEM skills is now on par with the number of STEM jobs in the U.S. As societies around the world transition to more knowledge-based economies, NSF is committed to preparing a 21st century workforce and ensuring that talented individuals from all sectors of our society have access to STEM learning." The ten big ideas for NSF investments are:

- [Harnessing the Data Revolution](#)
- [The Future of Work at the Human-Technology Frontier](#)
- [Navigating the New Arctic](#)
- [Windows on the Universe: The Era of Multi-Messenger Astrophysics](#)
- [The Quantum Leap: Leading the Next Quantum Revolution](#)
- [Understanding the Rules of Life: Predicting Phenotype](#)
- [Mid-scale Research Infrastructure](#)
- [NSF 2026: Seeding Innovation](#)
- [Growing Convergence Research at NSF](#)
- [NSF INCLUDES \(Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science\): Enhancing STEM through Diversity and Inclusion](#)

US Government White House Research Priorities: If confirmed by the Senate, Droegemeier will start his job with the fiscal 2020 budget process already under way. This week, acting OSTP Director, Michael Kratsios and Office of Management and Budget Director Mick Mulvaney spelled out research priorities, including artificial intelligence, autonomous systems, quantum, hypersonics, a modernized nuclear deterrent, and "advanced microelectronics, computing, and cyber capabilities." R&D should also aim to improve resilience and protect the nation and critical infrastructure from natural hazards, physical threats, cyber attacks and threats from drones or biological agents, the memo says. The document calls for strong collaboration among academia, industry, and government, and "Innovative partnership models." The memo includes the following R&D priority areas:

- **Security of the American People** – Based on the National Security Strategy,^[2] the President calls for “leadership in research, technology, invention, and innovation” and investment in R&D to maintain military superiority. Specifically, the memo directs prioritized investment in “AI, autonomous systems, hypersonics, a modernized nuclear deterrent, and advanced microelectronics, computing, and cyber capabilities.” Agencies are also directed to improve the security and resilience of U.S. critical infrastructure from “natural hazards, physical threats, cyber-attacks, and emerging threats from autonomous systems and biological agents.” This includes a range of activities from border security to better weather prediction.
- **American Leadership in Artificial Intelligence, Quantum Information Sciences, and Strategic Computing** – The memo states that these areas are vital to U.S. national security and economic competitiveness. AI research should include “machine learning, autonomous systems, and applications at the human-technology frontier.” Activities in quantum information sciences (QIS) should aim to develop the next generation of QIS theory, devices, and applications. The memo directs agencies to prioritize investment in research and infrastructure to “maintain U.S. leadership in strategic computing, from edge devices to high-performance computing, that accelerates delivery of low power, high performance devices; supports a national high-performance computing ecosystem; and explores novel pathways to advance computing in a post-Moore's Law era.”
- **American Connectivity and Autonomy** – Agencies should support R&D “to manage spectrum, secure networks, and increase access to high-speed internet” to support the development and deployment of advanced communications networks, including 5G wireless networks. Additional prioritization is also given to autonomous driving systems and unmanned aircraft systems (UAS).
- **American Manufacturing** – The memo highlights the importance of manufacturing technologies for job creation and to strengthen the U.S. manufacturing industrial base, including the need for agencies to work in collaboration with industry where appropriate. Priority areas highlighted in the memo include: “smart and digital manufacturing, and advanced industrial robotics, especially systems enabled by the industrial internet of things (IoT), machine learning, and AI.” The memo also highlights advanced materials and associated processing technologies; bio-based manufacturing; and semiconductor design and fabrication.
- **American Space Exploration & Commercialization** – The memo states, “Research investments should be focused on ensuring American leadership in space for long-duration spaceflight, in-space manufacturing, in-situ resource utilization, long-term cryogenic fuel storage and management, and advanced space-related power and propulsion capabilities. Agencies should prioritize demonstrations and flight tests to ensure an industrial base for commercial activity in space and on celestial bodies.” Micro-gravity research to advance biopharmaceuticals and materials science is highlighted. Additionally, agencies should support R&D in advanced materials, additive manufacturing, optical communications, and machine learning.
- **American Energy Dominance** – The memo states, “Fueling America's greatness requires access to domestic sources of clean, affordable, and reliable energy.” Agencies are directed to invest in early-stage, innovative technologies, and to rely on the private sector to support

^[2] National Security Strategy of the United States of America, December 2017:

<https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>

later-stage research, development, and commercialization. This is consistent with the Trump Administration's previous attempts to cut funding for applied research programs at the Department of Energy.

- **American Medical Innovation** – Agencies are directed to focus on basic research and translation. Areas of focus include personalized medicine, disease prevention, addressing the opioid crisis, infectious disease, mental health, and other public health threats. The memo highlights the importance of R&D to support healthcare for veterans, aging adults, and those with disabilities, as well as the need for agencies to work together to manage healthcare data.
- **American Agriculture** – Agencies are directed to “prioritize R&D that enables advanced and precision agriculture and aquaculture technologies, including the use of embedded sensors, data analytics, and machine learning techniques.” Agencies are also directed to “prioritize investments in pre-competitive research regarding the safety of microorganisms, plants, and animals developed using gene editing, in order to greater leverage biotechnology products for agriculture.”

Webinar and Events

Event: The Center for Advanced Research in Drying (CARD): An NSF Industry-University Cooperative Research Center Webinar

Sponsor: National Academies

When: September 5, 2018; 1.00 PM – 2.00 AM

Website: <https://www.uidp.org/event/cardwebinar/>

Brief Description: Sustainability. Energy Conservation. Product Quality. The drying of moist and porous materials is one of the most energy-intensive processes in manufacturing. CARD is a unique NSF IUCRC dedicated to discovering ways to help U.S. manufacturing industries become environmentally sustainable through improvements and innovations on the energy efficiency of various drying and relevant heat and mass transport processes. Join Mark Lippi, CARD's Program Manager and Sheyla Ramsay, Chair of CARD's IAB, and learn more about their unique research, operations, funding structure, intellectual property, project selection, and management. Learn more about CARD's current and past [research projects](#). Their projects focus on novel drying technology development and application, novel sensor design and manufacture, and use of unique tools to understand the underlying structural building blocks of products.

To register to the webinar: Please register at the above website.

Event: Math Frontiers Monthly Webinar Series

Sponsor: National Academies

When: September 11, 2018 from 2.00 PM

Website: http://sites.nationalacademies.org/deps/bmsa/deps_183972

Brief Description: Join the National Academies of Sciences, Engineering, and Medicine for a webinar series on exciting and upcoming mathematics research across an array of topics. Webinars will take place on the **second Tuesday of each month from 2-3 p.m. ET**, with two speakers and live Q&A. See below for the list of dates and themes for each webinar. *When registering, please make sure you select all the webinars you would like to attend.*

As each webinar approaches, we will post more information about the speakers on the webinar series page at nas.edu/mathfrontiers.

September 11, 2018: *Mathematical Analysis*

Professor [Dimitri Shlyakhtenko](#) and others will discuss mathematical analysis—the study of functions and their limits. Application areas include computational fluid dynamics and astronomy.

October 9, 2018: *Combinatorics*

Invited speakers will discuss the mathematical study of discrete structures and their properties focusing on some of the modern techniques in the area including the probabilistic method. Application areas include information theory, statistical physics, molecular biology and computer science.

November 13, 2018: *Why Machine Learning Works*

Invited speakers will discuss the mathematics behind machine learning and how they enable predictive analyses.

December 11, 2018: *Mathematics of Epidemics*

Professors [Calistus Ngonghala](#) and [Folashade B. Augusto](#) will discuss mathematical approaches to studying biology, including ecology and infectious disease.

To join the webinar: Please register at http://sites.nationalacademies.org/deps/bmsa/deps_183972

Grant Opportunities

National Science Foundation

**Grant Program: Collaborative Research in Computational Neuroscience (CRCNS)
Innovative Approaches to Science and Engineering Research on Brain Function**

Agency: National Science Foundation NSF 18-591

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18591/nsf18591.htm>

Brief Description: Computational neuroscience provides a theoretical foundation and a rich set of technical approaches for understanding complex neurobiological systems, building on the theory, methods, and findings of computer science, neuroscience, and numerous other disciplines.

Through the CRCNS program, the National Science Foundation (NSF), the National Institutes of Health (NIH), the German Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF), the French National Research Agency (Agence Nationale de la Recherche, ANR), the United States-Israel Binational Science Foundation (BSF), Japan's National Institute of Information and Communications Technology (NICT), and the State Research Agency (Agencia Estatal de Investigación, AEI) and National Institute of Health Carlos III (Instituto de Salud Carlos III, ISCIII), both of Spain, support collaborative activities that will advance the understanding of nervous system structure and function, mechanisms underlying nervous system disorders, and computational strategies used by the nervous system.

Two classes of proposals will be considered in response to this solicitation:

- Research Proposals describing collaborative research projects, and
- Data Sharing Proposals to enable sharing of data and other resources.

Domestic and international projects will be considered. As detailed in the solicitation, international components of collaborative projects may be funded in parallel by the participating agencies. Specific CRCNS opportunities for parallel funding are available for bilateral US-German Research Proposals, US-German Data Sharing Proposals, US-French Research Proposals, US-French Data Sharing Proposals, US-Israeli Research Proposals, US-Israeli Data Sharing Proposals, US-Japanese Research Proposals, US-Japanese Data Sharing Proposals, US-Spanish Research Proposals, US-Spanish Data Sharing Proposals, and multilateral proposals involving the United States and two or more CRCNS partner countries (please see Section VIII of the solicitation for country-specific instructions and limitations).

Appropriate scientific areas of investigations may be related to the interests of any of the participating funding organizations. Questions concerning a particular project's focus, direction, and

relevance to a participating funding organization should be addressed to the appropriate person in the list of agency contacts found in Section VIII of the solicitation.

Awards: Standard Grant **Anticipated Funding Amount:** \$20,000,000

Letter of Intent: Not Required

Full Proposal Submission Deadline: November 27, 2018

Contacts: Kenneth Whang, CRCNS Program Coordinator - NSF; Program Director, Division of Information and Intelligent Systems, National Science Foundation, telephone: (703) 292-5149, fax: (703) 292-9073, email: kwhang@nsf.gov

- Jasmine Owens, CRCNS Administrative Coordinator - NSF; Program Analyst, Division of Information and Intelligent Systems, National Science Foundation, telephone: (703) 292-8377, fax: (703) 292-9073, email: jowens@nsf.gov

Grant Program: NSF/Intel Partnership on Foundational Microarchitecture Research (FoMR)

Agency: National Science Foundation NSF 18-588

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18588/nsf18588.htm>

Brief Description: The confluence of transistor scaling, increases in the number of architecture designs per process generation, the slowing of clock frequency growth, and recent success in research exploiting thread-level parallelism (TLP) and data-level parallelism (DLP) all point to an increasing opportunity for innovative microarchitecture techniques and methodologies in delivering performance growth in the future.

The NSF/Intel Partnership on Foundational Microarchitecture Research will support transformative microarchitecture research targeting improvements in instructions per cycle (IPC). This solicitation seeks microarchitecture technique innovations beyond simplistic, incremental scaling of existing microarchitectural structures. Specifically, FoMR seeks to advance research that has the following characteristics: (1) high IPC techniques ranging from microarchitecture to code generation; (2) “microarchitecture turbo” techniques that marshal chip resources and system memory bandwidth to accelerate sequential or single-threaded programs; and (3) techniques to support efficient compiler code generation. Advances in these areas promise to provide significant performance improvements that continue the trends characterized by Moore’s Law.

Awards: Standard Grant **Anticipated Funding Amount:** \$2,500,000

Letter of Intent: Not Required

Full Proposal Submission Deadline: November 28, 2018

Contacts: Yuanyuan Yang, Program Director, CCF, telephone: (703) 292-8910, email: yyang@nsf.gov

- Matt Haycock, Center Executive Sponsor, Vice President, Intel Labs, telephone: (503) 712-2872, email: matthew.haycock@intel.com
- Hong Wang, Center Managing Sponsor, Intel Fellow, Intel Labs, telephone: (408) 653-7075, email: hong.wang@intel.com
- Jeff Parkhurst, Center Program Director, Intel Labs, telephone: (916) 356-2508, email: jeff.parkhurst@intel.com

Grant Program: Instrument Capacity for Biological Research (ICBR)

Agency: National Science Foundation NSF PD 18-1108 NSF 594

RFP Website:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505542&org=NSF&sel_org=NSF&from=fund

Brief Description: Advances in the biological sciences are enabled by our capacity to acquire, manage, represent, and analyze biological information through the use of modern instrumentation and computational tools. Instrumentation Capacity for Biological Research (ICBR) invites proposals that

specifically enable increased access to state of the art instrumentation in support of the biological sciences by (1) increasing access to a community of users through broadening of dissemination of such instrumentation, and (2) broadening access to state-of-the art instrumentation and facilities at a regional or national level.

The “Rules of Life” is one of the NSF’s ten big ideas for future investment. Understanding these basic “Rules” and how they operate across scales of time, space, and complexity to determine how genes function and interact with the environment will enable us to predict the phenotype, structure, function, and behavior of organisms. Providing scientists with the instrumentation and resources necessary to make these discoveries requires investments in new instrumentation capabilities and extending access to existing instrumentation and experimental facilities. Competitive proposals under ICBR will expand access to new or existing instrumentation that supports a significant segment of the biological research community conducting research in areas supported by the NSF Biological Sciences Directorate (BIO). The program will support activities that (1) enhance the access to and dissemination of innovative instrumentation, and (2) promote and enable access to existing instrumentation facilities (ie. imaging, genomics, proteomics, etc.) at the regional or national level.

ICBR supports capacity building that may include (but is not limited to):

- Building a community of instrument users through broadening dissemination of new or significantly improved instrumentation
- Broadening of access to instrumentation or experimental facilities at the regional or national level that provide infrastructure for data collection that might not be otherwise available to researchers due to the cost of instrumentation, the lack of available resources on campus, or the requirement of otherwise unavailable technical expertise.

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

Letter of Intent: Not Required

Full Proposal Submission Deadline: Proposals Accepted Anytime

Contacts: Robert D. Fleischmann rfleisch@nsf.gov (703) 292-7191

Peter H. McCartney pmccartn@nsf.gov (703) 292-8470

Grant Program: Cyberinfrastructure for Biological Research (CIBR)

Agency: National Science Foundation NSF 18-594 PD 18-1165

RFP Website:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505538&org=NSF&sel_org=NSF&from=fund

Brief Description: Biological processes at all scales from molecules to ecosystems are determined through the encoding, exchange, and interpretation of information. Advances in the biological sciences are enabled by our capacity to acquire, manage, represent, and analyze biological information through the use of modern instrumentation and computational tools. Developing an integrated understanding of cell function, regulatory systems, or ecological responses to environmental change are just a few examples of biological research areas that involve the acquisition, observation, experiment, and modeling of large amounts of data. Proposals are invited that offer potentially transformative outcomes through the development of informatics tools and resources that (1) offer novel and significant advances in the use of biological data and/or (2) will enable and stimulate advances through their impact on a significant segment of the biological research community supported by the NSF BIO Directorate.

Awards in CIBR should produce, or substantially expand a finished product that will have demonstrable impact in advancing biological research. Proposals should convey their likelihood of success through greater attention to user engagement, design quality, engineering practices, management plan, and dissemination. Budgets and award durations should accommodate the iterative process of bringing a proof of concept into a robust, broadly-adopted cyberinfrastructure. Development proposals are more outcome-driven than Innovation awards and are typically assessed on their perceived contribution to a broad

portfolio of cyberinfrastructure resources. Synergies with, and leveraging of, other existing and ongoing resources are taken into consideration.

CIBR supports development in areas that may include (but are not limited to):

- Databases consisting of primary data obtained through observation, experimentation, modelling, or synthesis of existing data into new derivative products.
- New tools for the construction, operation, and utilization of biological databases, including database architectures and infrastructures, data standards designed to be extendable to different biological domains, and data structures for new types of biological information
- Software or ontologies related to the retrieval, integration, and use of heterogeneous biological information, for example, data discovery, data-mining, data integration or visualization
- Tools that facilitate biological research workflows, analytic pathways, or integration between the field and the laboratory, or between observation, experiments and models
- Software and methods for making use of new technologies for the acquisition, communication or visualization of biological data
- Infrastructure that provides broad community access to shared computational and data resources, commonly referred to as scientific gateways.

Higher priority will be placed on proposals to create computational tools and data resources that are applicable to a broad range of biological research questions and shared by a broad user community. Proposals to develop tools or databases that are limited to a specific research project, laboratory, or institution should be submitted to the relevant BIO programs that would normally support that research.

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

Letter of Intent: Not Required

Full Proposal Submission Deadline: Proposals Accepted Anytime

Contacts: Peter H. McCartney pmccartn@nsf.gov (703) 292-8470
Jennifer W. Weller jweller@nsf.gov (703) 292-7121

Grant Program: Division of Environmental Biology (DEB) Core Programs

Agency: National Science Foundation NSF 18-587

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18587/nsf18587.htm>

Brief Description: The Division of Environmental Biology (DEB) Core Track supports research and training on evolutionary and ecological processes acting at the level of populations, species, communities, and ecosystems. DEB encourages research that elucidates fundamental principles that identify and explain the unity and diversity of life and its interactions with the environment over space and time. Research may incorporate field, laboratory, or collection-based approaches; observational or manipulative studies; synthesis activities; phylogenetic discovery projects; or theoretical approaches involving analytical, statistical, or computational modeling. Proposals should be submitted to the core clusters (Ecosystem Sciences, Evolutionary Processes, Population and Community Ecology, and Systematics and Biodiversity Sciences). DEB also encourages interdisciplinary proposals that cross conceptual boundaries and integrate over levels of biological organization or across multiple spatial and temporal scales. Research addressing ecology and ecosystem science in the marine biome should be directed to the Biological Oceanography Program in the Division of Ocean Sciences; research addressing evolution and systematics in the marine biome should be directed to the Evolutionary Processes or Systematics and Biodiversity Science programs in DEB.

All DEB programs also encourage proposals that leverage NSF-supported data networks, databases, centers, and other forms of scientific infrastructure, including but not limited to the National Ecological Observatory Network (NEON), Environmental Data Initiative (EDI), and Integrated Digitized Biocollections (iDigBio).

Rules of Life Track proposals that integrate across the scales in biological sciences are solicited to support research that spans from the population, species, community and ecosystem scales normally funded by DEB, to organismal, cellular and molecular scales typically funded by other divisions in the Biological Sciences. This track provides new opportunities to advance our understanding of the Rules of Life by new mechanisms for review and funding of proposals that would not ordinarily fit well within one division in the Biological Sciences Directorate.

Awards: Standard Grant **Anticipated Funding Amount:** \$100,000,000

Letter of Intent: Not Required

Full Proposal Submission Deadline: Proposals Accepted Anytime

Contacts: Division of Environmental Biology, Phone: (703) 292-8480, email: debquestions@nsf.gov

Grant Program: Division of Integrative Organismal Systems Core Programs

Agency: National Science Foundation NSF 18-586

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18586/nsf18586.htm>

Brief Description: The Division of Integrative Organismal Systems (IOS) supports research aimed at understanding why organisms are structured the way they are and function as they do. Proposals are welcomed in all of the core scientific program areas supported by the Division of Integrative Organismal Systems (IOS). Areas of inquiry include, but are not limited to, developmental biology and the evolution of developmental processes, nervous system development, structure, modification, function, and evolution; biomechanics and functional morphology, physiological processes, symbioses and microbial interactions, interactions of organisms with biotic and abiotic environments, plant and animal genomics, and animal behavior. Proposals should focus on organisms as a fundamental unit of biological organization. Principal Investigators (PIs) are encouraged to apply systems approaches that will lead to conceptual and theoretical insights and predictions about emergent organismal properties.

Awards: Standard Grant **Anticipated Funding Amount:** \$60,000,000

Letter of Intent: Not Required

Full Proposal Submission Deadline: Proposals Accepted Anytime

Contacts: Behavioral Systems Program Directors, telephone: (703) 292-8423, email: IOSBSC@nsf.gov

- Developmental Systems Program Directors, telephone: (703) 292-8417, email: IOSDSC@nsf.gov
 - Neural Systems Program Directors, telephone: (703) 292-8421, email: IOSNSC@nsf.gov
 - Phys. & Struct. Systems Program Directors, telephone: (703) 292-8413, email: IOSPSS@nsf.gov
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Grant Program: Division of Molecular and Cellular Biosciences: Investigator-initiated research projects (MCB)

Agency: National Science Foundation NSF 18-585

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18585/nsf18585.htm>

Brief Description: The Division of Molecular and Cellular Biosciences (MCB) supports quantitative, mechanistic, predictive, and theory-driven fundamental research designed to promote understanding of complex living systems at the molecular, subcellular, and cellular levels. While recognizing the need for thorough and accurate descriptions of biological complexes and pathways, the priority of the Division is to support work that advances the field by capturing the predictive power of mechanistic, quantitative, and evolutionary approaches.

Two funding tracks will be available.

- Core Program Track proposals are solicited to support research relevant to the four MCB core clusters:

- Cellular Dynamics and Function
- Genetic Mechanisms
- Molecular Biophysics
- Systems and Synthetic Biology
- Rules of Life Track proposals that integrate across the scales in biological sciences are solicited to support research that spans from the molecular and cellular levels normally funded by MCB to organismal and ecosystem scales typically funded by other divisions in the Biological Sciences. This track provides new opportunities to advance our understanding of the Rules of Life by new mechanisms for review and funding of proposals that would not ordinarily fit well within one division in the Biological Sciences Directorate.

MCB gives high priority to research projects that use theory, methods, and technologies from life and physical sciences, mathematics, computational sciences, and engineering to address major biological questions that elucidate the rules governing subcellular and cellular processes. Research supported by MCB uses a range of experimental and computational approaches—including *in vivo*, *in vitro* and *in silico* strategies—and a broad spectrum of model and non-model organisms, including microbes and plants. Typical research supported by MCB integrates theory and experimentation. Projects are particularly welcome that address the emerging areas of: multi-scale integration; transformative methods and resources (when driven by compelling biological questions); molecular and cellular evolution; the synthesis of life-like systems; and the quantitative prediction of the phenome from genomic information. Highest funding priority is given to applications that have outstanding intellectual merit and strong broader impacts, while proposals with weaknesses in either category (or those that are perceived as likely to have an incremental impact) will not be competitive. Proposals that are motivated by relevance to human health and disease treatment are not appropriate for the Division and will be returned without review.

Awards: Standard Grant **Anticipated Funding Amount:** \$90,000,000

Letter of Intent: Not Required

Full Proposal Submission Deadline: Proposals Accepted Anytime

Contacts: Charles Cunningham, Cellular Dynamics and Function, telephone: (703) 292-8440, email: mcb-cdf@nsf.gov

- Arcady Mushegian, Genetic Mechanisms, telephone: (703) 292-8440, email: mcb-gm@nsf.gov
- Wilson A. Francisco, Molecular Biophysics, telephone: (703) 292-8440, email: mcb-mb@nsf.gov
- David A. Rockcliffe, Systems and Synthetic Biology, telephone: (703) 292-8440, email: mcb-ssb@nsf.gov

Grant Program: SBE Postdoctoral Research Fellowships (SPRF)

Agency: National Science Foundation NSF 18-584

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18584/nsf18584.htm>

Brief Description: The Directorate for Social, Behavioral and Economic Sciences (SBE) offers Postdoctoral Research Fellowships to encourage independence early in the Fellow's career through supporting his or her research and training goals. The research and training plan of each Fellowship must address important scientific questions within the scope of the SBE Directorate and the specific guidelines in this solicitation. The SPRF program offers two tracks: (I) Fundamental Research in the SBE Sciences (SPRF-FR) and (II) Broadening Participation in the SBE Sciences (SPRF-BP). See the full text of the solicitation for a detailed description of these tracks.

Awards: Standard Grant **Anticipated Funding Amount:** \$3,000,000

Letter of Intent: Not Required

Full Proposal Submission Deadline: November 20, 2018

Contacts: Josie S. Welkom-Acting Program Officer, telephone: (703) 292-7376, email: jwelkom@nsf.gov

- Lisa M. Jackson-Program Specialist, telephone: (703) 292-7882, email: lmjacks@nsf.gov
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Grant Program: Improving Undergraduate STEM Education: Pathways into Geoscience (IUSE: GEOPATHS)

Agency: National Science Foundation NSF 18-583

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18583/nsf18583.htm>

Brief Description: A well-prepared, innovative science, technology, engineering and mathematics (STEM) workforce is crucial to the Nation's health and economy. Indeed, recent policy actions and reports have drawn attention to the opportunities and challenges inherent in increasing the number of highly qualified STEM graduates, including STEM teachers. Priorities include educating students to be leaders and innovators in emerging and rapidly changing STEM fields as well as educating a scientifically literate populace. Both of these priorities depend on the nature and quality of the undergraduate education experience. In addressing these STEM challenges and priorities, the National Science Foundation invests in evidence-based and evidence-generating approaches to understanding STEM learning; to designing, testing, and studying instruction and curricular change; to wide dissemination and implementation of best practices; and to broadening participation of individuals and institutions in STEM fields. The goals of these investments include: increasing the number and diversity of STEM students; preparing students well to participate in science for tomorrow and improving students' STEM learning outcomes.

NSF's *Improving Undergraduate STEM Education (IUSE)* initiative, launched in Fiscal Year 2014, supports a coherent set of investments to address immediate challenges and opportunities that are facing undergraduate STEM education, as well as those that anticipate new structures (e.g. organizational changes, new methods for certification or credentialing, course re-conception, cyberlearning, etc.) and new functions of the undergraduate learning and teaching enterprise. The NSF-wide *IUSE* initiative acknowledges the variety of discipline-specific challenges and opportunities facing STEM faculty as they strive to incorporate results from educational research into classroom practice and work with education research colleagues and social science learning scholars to advance our understanding of effective teaching and learning.

Awards: Standard Grant **Anticipated Funding Amount:** \$6,000,000

Letter of Intent: Required by September 21, 2018

Limit on Number of Proposals per Organization: An organization may serve as sole submitting institution or as lead institution of a collaborative project on only one submission per competition, regardless of track, but may serve as the non-lead institution of a collaborative project more than once per competition. Please contact SVPR Atam Dhawan if you are interested in submission.

Full Proposal Submission Deadline: November 19, 2018

Contacts: M. Brandon Jones, telephone: (703) 292-4713, email: mbjones@nsf.gov

- Dena M. Smith, telephone: (703) 292-7431, email: dmsmith@nsf.gov
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National Institutes of Health

Grant Program: BRAIN Initiative: Team-Research BRAIN Circuit Programs - TeamBCP (U19 Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-NS-19-003

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-19-003.html>

Brief Description: Awards within this RFA will support research programs with 2-5 Research Projects focused on a high impact topic and cutting-edge technologies in large-scale recording and manipulation

of circuits in vivo in the context of measurable behaviors. These research teams should offer resources and governance that bridge across institutional ‘silos.’ For example, research teams might comprise components across institutions or across colleges within a university. Projects should investigate neural function related to defined, ethologically relevant behaviors, well-defined neural systems, and/or biological mechanisms at an anatomic resolution of cells and circuits, and at a sub-second temporal resolution. We expect that awarded projects will become part of a consortium among BRAIN Initiative awardees in developing technologies, methods, expertise, and data and tools for sharing and reuse within the research community. There will be annual reviews by an External Advisory Board per award, with expanded programmatic site visits during years 2 and 4.

The proposed studies must relate to at least one of the seven major topic areas of the BRAIN 2025 report:

1. Discovering diversity: Identify and provide experimental access to the different cell types to determine their roles in the context of circuit function.
2. Maps at multiple scales: Generate structural and functional circuit diagrams that can span resolution from synapses to the whole brain.
3. The brain in action: Produce a dynamic picture of the functioning brain by developing and applying improved methods for large-scale monitoring of neural activity.
4. Demonstrating causality: Link brain activity to behavior with precise interventional tools that change neural circuit dynamics.
5. Identifying fundamental principles: Produce conceptual foundations about circuit dynamics and functional connectivity for understanding the biological basis of mental processes through development of new theoretical and data analysis tools.
6. Advancing human neuroscience: Develop innovative technologies to understand brain circuits and ensembles of circuits that inform understanding of the human brain and mechanisms for treating its disorders.
7. From BRAIN Initiative to the brain: Integrate new technological and conceptual approaches produced in Goals #1-6 to discover how dynamic patterns of neural activity are transformed into cognition, emotion, perception, and action in health and disease.

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

Letter of Intent: September 30, 2018

Deadline: October 30, 2018 by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

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

Grant Program: BRAIN Initiative: Research Opportunities Using Invasive Neural Recording and Stimulating Technologies in the Human Brain (U01 Clinical Trial Required)

Agency: National Institutes of Health RFA-NS-19-001

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

Brief Description: Investigations within the human brain offer revolutionary, but challenging, opportunities for experimental investigation of how the human brain senses, thinks, perceives, remembers, plans, registers emotions, activates movements, and makes decisions. Invasive surgical procedures provide the unique ability to record and stimulate neurons within precisely localized brain structures in humans. However, human studies using invasive technology are often constrained by a limited number of patients and resources available to implement complex experimental protocols and are rarely aggregated in a manner that addresses research questions with appropriate statistical power. Therefore, this RFA seeks applications to assemble diverse, integrated, multi-disciplinary teams that cross boundaries of interdisciplinary collaboration to overcome these fundamental barriers and to investigate high-impact questions in human neuroscience. Projects should propose prospective testing and

validation of explicit or model-driven hypotheses. Studies that offer deployment or development for high temporal resolution of behavioral quantification integrated with invasive recording of brain activity is encouraged, especially those that would transition to use in naturalistic environments outside of strict laboratory settings.

Projects should engage diverse, multidisciplinary teams consisting of clinicians, scientists, device engineers, data/computational scientists, regulatory specialists, and/or ethics specialists. Teams may be assembled within a single institution, but because of the likelihood of a limited number of patients at any single research center, integration of research teams across sites is strongly encouraged.

Awardees are expected to actively participate in a consortium work group, coordinated by the NIH, to identify consensus standards of practice, including neuroethical considerations, to collect and provide data for ancillary studies, and to aggregate and standardize data for dissemination among the wider scientific community. In the interest of iterative models of discovery, support for complementary animal studies are allowed if they validate or inform these empirical studies of human physiology. Applicants are expected to employ approaches guided by specified theoretical constructs, and are encouraged to employ quantitative, mechanistic models where appropriate.

We anticipate that implantable devices for most of these applications will rely on existing technology sufficiently advanced for an IRB Non-Significant Risk designation, or an FDA IDE without needing significant additional pre-clinical testing on the device. We also anticipate that newly IDE-approved devices may become available over the course of these awards. NIH BRAIN is supporting new device development and regulatory approval through other NIH BRAIN initiatives, including the availability of template Memoranda of Agreements (MOUs), Confidential Disclosure Agreements (CDAs) and Collaborative Research Agreements (CRAs) with various private and commercial device providers that may facilitate awardees to adopt novel technologies to fit their needs (see <http://braininitiative.nih.gov/> for up to date information and NIH Scientific/Research contacts). Where appropriate, applicants are encouraged to anticipate potential and alternative plans for adopting newly available technologies. Furthermore, use of the cooperative agreement mechanism will allow awardees to negotiate the incorporation of new technologies by working through NIH Program staff in collaboration with technology providers.

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

Letter of Intent: October 14, 2018

Deadline: November 14, 2018 by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.

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

Grant Program: Virtual Consortium for Translational/Transdisciplinary Environmental Research (ViCTER) (R01 Clinical Trial Optional)

Agency: National Institutes of Health RFA-ES-18-007

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-ES-18-007.html>

Brief Description: The primary goal for creating this ViCTER program is to support the exchange of knowledge among individuals from a diverse set of disciplines and accelerate the translation of scientific research into meaningful improvements in human health in those areas where environmental factors are known or suspected to influence the development or progression of disease. To accomplish this goal, each newly established collaborative team is expected to initiate research in the development and application of novel approaches for understanding the etiology of environmentally-related disease and, where appropriate, explore clinical and public health implications for diagnosis, treatment and/or prevention. Each ViCTER consortium must consist of at least three key participants (the PD/PI plus two scientists designated by the PD/PI as "co-investigators") that together represent a newly collaborative team. For the

purposes of this FOA, a team is considered newly collaborative if there are no co-authored original research publications among the PD/PI and co-investigators within the last 5 years (excluding reviews, white papers, commentaries etc.). NIEHS strongly recommends but does not require that at least one co-investigator be at a different institution from the PD/PI.

A critical component of the ViCTER program, particularly in cases where team members are located at different institutions, is their virtual aspect. This allows researchers at remote locations to form a consortium to integrate their research through the development of a virtual center that “houses” the overall ViCTER project. The PD/PI serves as the Director of the consortium and is responsible for scheduling regular conference calls (at least monthly) and in-person (at least yearly) meetings.

The PD/PI must propose a series of aims that are thematically related, foster collaboration among team members and reflect transdisciplinary/translational approaches to environmental health. The PD/PI and co-investigators should each have a substantial and meaningful role in developing and conducting the overall ViCTER project, demonstrated by each assuming primary responsibility for leading one or more of the proposed Specific Aims.

NIEHS particularly encourages applicants to propose research aims that are high risk/high reward which, if successful, are likely to contribute significantly to one or more areas of environmental science and be the motivator of future collaborative research.

The proposed ViCTER project must fall within the NIEHS mission. Environmental agents which are considered of primary interest for NIEHS include: industrial chemicals or manufacturing byproducts, metals, pesticides, herbicides, air pollutants and other inhaled toxicants, particulates or fibers, fungal, and bacterial or biologically derived toxins. Investigators who propose studies with a primary focus on NIEHS mission relevant exposures are encouraged to consider inclusion of other relevant environmental exposures (e.g., nutrition) in order to assess their role(s) as cofactors/modifiers of the risk or protection associated with the primary exposure(s). Applications that propose laboratory-based studies using only model compounds (i.e., those without potential for human exposure) must provide a clear, reasonable and specific description as to how research on the model compound will lead to a better understanding of the mechanisms involved in responses to specific environmental agents which are included in the mission responsibility of the NIEHS.

Awards: Application budgets are limited to \$400,000 direct cost per year and should reflect the actual needs of the proposed project.

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

Deadline: December 3, 2018; December 2, 2019; December 1, 2020, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

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

Grant Program: NLM Research Grants in Biomedical Informatics and Data Science (R01 Clinical Trial Optional)

Agency: National Institutes of Health NLM PAR-18-896

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-18-896.html>

Brief Description: The National Library of Medicine (NLM) supports innovative research and development in biomedical informatics and data science. The scope of NLM's interest in these research domains is broad, with emphasis on new methods and approaches to foster data driven discovery in the biomedical and clinical health sciences as well as domain-independent, reusable approaches to discovery, curation, analysis, organization and management of health-related digital objects. Biomedical informatics and data science draw upon many fields, including mathematics, statistics, information science, computer science and engineering, and social/behavioral sciences. Application domains include health care

delivery, basic biomedical research, clinical and translational research, precision medicine, public health, biosurveillance, health information management in disasters, and similar areas. Biomedical informatics is the interdisciplinary field that studies and pursues the effective uses of biomedical data, information, and knowledge for scientific inquiry, problem solving and decision making, motivated by efforts to improve human health. NIH defines data science as the interdisciplinary field of inquiry in which quantitative and analytical approaches, processes, and systems are developed and used to extract knowledge and insights from increasingly large and/or complex sets of data.

Awards: Application budgets are limited to \$250,000 per year in direct costs and need to reflect the actual needs of the proposed project.

Letter of Intent: Not required

Deadline: [Standard dates](#) apply, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

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

Grant Program: BRAIN Initiative: Development of Novel Tools to Probe Cell-Specific and Circuit-Specific Processes in Human and Non-Human Primate Brain (UG3/UH3 Clinical Trial Optional)

Agency: National Institutes of Health RFA-MH-19-135

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-MH-19-135.html>

Brief Description: This FOA is designed to support development and validation of novel tools to facilitate the detailed analysis and/or manipulation of cells and circuits and provide insights into the neural circuitry and structure underlying complex behaviors in humans and non-human primates and other mammalian brains (e.g., sheep, pig). The human brain consists of an estimated one hundred billion neurons and similar number of supporting glial cells that are uniquely organized to confer the extraordinary computational activities of the brain. Considerable progress has been made in defining the cytology and signal transduction processes in the CNS, but circuit-level function and the neural mechanisms of cognition and behavior remain poorly understood. Cell-type and circuit-specific manipulation strategies are key technical factors in addressing these important areas and represent attractive strategies to treat brain disorders. This initiative is focused on developing tools (or vastly improving existing tools) that will ultimately enable access to individual cells and defined groups of cells within neuronal circuits of the human brain. In order to achieve these goals, it is acknowledged that the use of large brains such as non-human primates, sheep and pig will be instrumental in this process. Development of tools that are applicable to human or non-human primate brains should focus on overcoming barriers to use of such tools (i.e., opto/chemo and magnetogenetic actuators). The tools sought through this FOA can include novel genetic or non-genetic methods for targeted delivery of genes, proteins, and chemicals to specific cells or tightly defined cell types and circuits.

Development of novel tools that will delineate anatomical connections between cells and expand our knowledge of circuit architecture and function is an area well poised for additional investment. Several efforts are currently underway to study large-scale, long-range connections, such as the NIH Human Connectome Project, as well as large scale rodent connectational studies. Recent development of innovative technologies (e.g., CLARITY, expansion microscopy, MERFISH, and several other imaging breakthroughs) allows an unprecedented three-dimensional view into the post-mortem brain. While still at an early stage, these exciting technologies hold promise for mapping short- and long-range connections throughout the brain. Coupled with improved activity monitoring technologies in awake, behaving animals, these new tools promise an understanding of circuitry in action. Further development of these technologies is crucial to push the envelope beyond our current capabilities. To this end, applicants from the biological sciences are encouraged to establish collaborations with engineers, chemists, material

scientists, nanobiologists, and colleagues in other disciplines to develop groundbreaking approaches to study brain activity.

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

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

Deadline: October 9, 2018; September 26, 2019 and September 28, 2020 , by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

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

Grant Program: Regenerative Medicine Innovation Project (RMIP) Investigator-Initiated Studies (U01 – Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-HL-18-030

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-HL-18-030.html>

[RFA-HL-18-031](#), [UG3/UH3](#) Exploratory/Developmental Phased Award Cooperative Agreement

[RFA-HL-18-033](#), [UT2](#) Small Business Technology Transfer (STTR) Cooperative Agreement – Fast-Track

[RFA-HL-18-035](#), [U44](#) Small Business Innovation Research (SBIR) Cooperative Agreement - Fast-Track

Brief Description: Applicants are strongly encouraged to submit research applications that demonstrate potential to catalyze sustained and accelerated development of the RM field through contributing to the knowledge critical for clinical testing, stem cell characterization and authentication, cGMP compliant stem cell production, in vivo stem cell tracking and monitoring, data standards development, and data sharing. It is expected that submitted applications will address the following:

- Preclinical studies that contribute to conducting clinical trials that address specific clinical indications;
- Testing human adult stem cells in well-developed animal models;
- Monitoring stem cell function and integration *in vivo*;
- Methods for in-depth stem cell characterization and deep fingerprinting, and utilization of standards;
- Interactions with FDA regarding a future IND or IDE application (such as having had a pre-IND meeting and other communications);
- Further development of standards and cGMP for adult stem cell-based RM products;
- Leveraging extant cell production facilities for product preparation and qualification; and
- Contributing to a better and shared understanding of current technical and operational barriers as well as regulatory science issues and how to overcome them.

Awards: The total budget (Federal award and non-Federal matching contributions) should reflect the actual needs of the proposed project. While annual project budgets should reflect the actual costs anticipated in each year, the Federal share of this award must not exceed \$250,000 in direct costs per year. The recipient is required to provide at least a 1:1 match of the Federal funds requested (for Direct and Indirect/F&A costs) in the form of non-Federal contributions.

Letter of Intent: September 19, 2018

Deadline: October 19, 2018, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on this date.

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

Grant Program: Short-term Mentored Career Enhancement Awards in Mobile and Wireless Health Technology and Data Analytics: Cross-Training at the intersection of Behavioral and Social Sciences and STEM Disciplines (K18 Independent Clinical Trial Not Allowed)

Agency: National Institutes of Health PAR-18-881

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-18-881.html>

Brief Description: The objective of the Career Enhancement Award for Experienced Investigators (K18) is to provide support for experienced scientists who either wish to broaden their scientific capabilities or to make changes in their research careers by acquiring new research skills or knowledge. The purpose of this FOA is to provide such investigators with support for an intensive period of mentored research experience to acquire new research capabilities in mobile and wireless health technology and data analytics that align with research areas supported by the sponsoring NIH Institute(s)/Center(s). Such experiences will afford candidate investigators protected time to: 1) enrich and expand their expertise and research programs through retooling in new techniques, emerging technologies, and/or scientific areas; and/or 2) redirect their research programs in new trajectories; and/or 3) catalyze research collaborations in new research directions.

Candidates will not be required to have active research grant support at the time of application. However, they will be expected to identify one or more research mentors with the relevant expertise who are established, well-qualified, and willing to sponsor the short-term research career development experience. It is expected that this initiative will lead to new and augmented research collaborations that will be competitive for future NIH funding.

Research Scope

The goal of the program is to support the development of research capability in mobile and wireless health technology (e.g., wearable devices, mobile applications, electronic health records, data analytics). Special emphasis will be given to independent behavioral and social sciences investigators who seek to train in a STEM discipline (e.g., big data analysis, computational modeling, engineering, computer science, and mathematics) or to STEM scientists who wish to extend their career development in a behavioral and social science discipline.

Awards: Award budgets are composed of salary and other program-related expenses.

Letter of Intent: Not required

Deadline: July 12, 2019; July 12, 2020;, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

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

Department of Defense/US Army/DARPA/ONR

Grant Program: Complex Traumatic Brain Injury Rehabilitation Research Clinical Research Award

Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-18-CTRR-CRA

Website: <http://cdmrp.army.mil/funding/dmrdp>

Brief Description: The FY18 PH/TBIRP CTRR-CRA is intended to support clinical research focused on understanding the clinical sequelae and mechanisms of recovery associated with TBI and TBI rehabilitation interventions. The overarching goals of this award are to address TBI-related impairments and deficits, including multimodal, and cognitive dysfunction to (1) develop and validate rehabilitation outcome measures; (2) systematically analyze standard of care cognitive interventions to identify optimal treatment ingredients; and (3) improve clinician-driven assessment strategies to guide return-to-duty decision making.

The FY18 PH/TBIRP CTRR-CRA seeks research to develop and validate novel outcome measures that will characterize and track functional cognitive performance in Service members and relevant populations with cognitive dysfunction following TBI; and to identify key treatment ingredients to optimize cognitive rehabilitation following TBI, as consistent with the mission of the JPC-8/CRM RP. The proposed research must be relevant to active duty Service members, Veterans, and their beneficiaries. It is expected that any research findings will also provide benefit to the general population.

The FY18 PH/TBIRP CTRR-CRA mechanism supports applied and translational clinical research to advance the development of knowledge and materiel products for rehabilitation and restoration of function following TBI. Applicants should explain how their work will inform the development, refinement, and/or revision of existing standards of care, clinical recommendations, or guidelines.

Awards: Various; Available Funding: \$4,000,000.

Proposal Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), September 24, 2018 • Invitation to Submit an Application: October 2018 • Application Submission Deadline: 11:59 p.m. ET, December 17, 2018

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

Grant Program: Young Faculty Award

Agency: Department of Defense DARPA DARPA-RA-18-02

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

Brief Description: The Defense Advanced Research Projects Agency (DARPA) Young Faculty Award (YFA) program aims to identify and engage rising stars in junior faculty positions in academia and equivalent positions at non-profit research institutions and expose them to Department of Defense (DoD) and National Security challenges and needs. In particular, this YFA will provide high-impact funding to elite researchers early in their careers to develop innovative new research directions in the context of enabling transformative DoD capabilities. The long-term goal of the program is to develop the next generation of scientists and engineers in the research community who will focus a significant portion of their future careers on DoD and National Security issues. DARPA is particularly interested in identifying outstanding researchers who have previously not been performers on DARPA programs, but the program is open to all qualified applicants with innovative research ideas.

Eligibility Requirements: Participation in the YFA program is limited to any current tenure-track Assistant or Associate Professors and to tenured Assistant or Associate Professors within three (3) years of their tenure appointment at a U.S. institution of higher education or equivalent at a U.S. non-profit science and technology research institutions. Proposals are not being sought from foreign organizations; however, foreign organizations may be a member of a team in a subcontractor role. Previous YFA recipients are not eligible to apply to this or any future YFA program. Please see Section III for more details.

Awards: Each award will include a 24-month base period (a maximum of \$500,000) and a 12-month option period (a maximum of \$500,000).

Proposal Deadline: Executive Summary Due Date: September 10, 2018, 4:00 p.m. o FAQ Submission Deadline: November 8, 2018, 4:00 p.m. See Section VIII.A. o Full Proposal Due Date: November 13, 2018, 4:00 p.m.

Contact Information: RA Coordinator YFA2019@darpa.mil

Grant Program: DoD Accelerating Innovation in Military Medicine Research Award

Agency: Department of Defense DARPA W81XWH-18-DMRDP-AIMM

Website: <http://cdmrp.army.mil/funding/dmrpd>

Brief Description: The U.S. Army Medical Research and Materiel Command's (USAMRMC) mission is to responsively and responsibly create, develop, deliver, and sustain medical capabilities for the Warfighter. The AIMM initiative was created to accelerate transformational biomedical research for our Armed Forces and Nation. The mission of the AIMM initiative is to encourage, identify, and enable innovative research that leads to cross-cutting solutions to military health threats. The AIMM Research Award is intended to support highly creative and conceptually innovative high-risk research with the potential to accelerate critical discoveries or major advancements that will significantly impact military health and medicine. AIMM initiative funding supports novel research concepts and other efforts that initiate or enhance potential game-changers that may not be supported by other funding mechanisms or core programs.

Awards: Appropriations for the AIMM initiative in FY17 totaled \$3 million (M). The FY18 appropriation is \$3M.

Proposal Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), September 19, 2018 • Invitation to Submit an Application: November 9, 2018 • Application Submission Deadline: 11:59 p.m. ET, January 2, 2019

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

Grant Program: BROAD AGENCY ANNOUNCEMENT (BAA) for Extramural Biomedical Research and Development

Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-18-S-SOC1

Website: <http://cdmrp.army.mil/>; <http://www.dcbids.net/bid-opportunities/2018/07/28/8804867-DoD-Vision-Investigator-Initiated-Research-Award.html>

Brief Description: This BAA is intended to solicit extramural research and development ideas using the authority provided by United States Code, Title 10, Section 2358. This BAA is issued under the provisions of the Competition in Contracting Act of 1984 (Public Law 98-369), as implemented in Federal Acquisition Regulation 6.102(d) (2) and 35.016 and in DoD Grant and Agreement Regulations (DoDGARs) 22.315. In accordance with FAR 6.102, projects funded under this BAA must be for basic and applied research to support scientific study and experimentation directed toward advancing the state-of-the-art or increasing knowledge or understanding rather than focusing on development of a specific system or hardware solution. Research and development funding through this BAA are intended and expected to benefit and inform both military and civilian medical practice and knowledge. This BAA provides a general description of USSOCOM's research and development programs, including research areas of interest, evaluation and selection criteria, pre-proposal/preapplication and full proposal/application preparation instructions, and general administrative information. Submission of a pre-proposal/pre-application is required. After review, if the USSOCOM is interested in receiving a full proposal/application, the Applicant or Offeror will be invited to submit a full proposal or full application. Specific submission information and additional administrative requirements can be found in the document titled "General Submission Instructions" available in Grants.gov along with this BAA.

Pre-proposal: Required. All pre-applications for both extramural and intramural organizations must be submitted through eBRAP (<https://eBRAP.org/>).

Awards: Total Funding Available: \$4,500,000

Proposal Deadline: 31 July, 2023, 11:59 p.m. Eastern Time

Contact Information: Questions related to BAA content or submission requirements as well as questions related to the submission of the pre-proposal/pre-application through eBRAP should be directed to the EBRAP Help Desk, which is available Monday through Friday from 8:00 a.m. to 5:00 p.m. Eastern Time. Response times may vary depending upon the volume of inquiries. Phone: 301-682-5507 Email: help@eBRAP.org

Grant Program: DoD Vision, Investigator- Initiated Research Award

Agency: Department of Defense CDMRP W81XWH-18-VRP-IIRA

Website: <http://cdmrp.army.mil/>; <http://www.dcbids.net/bid-opportunities/2018/07/28/8804867-DoD-Vision-Investigator-Initiated-Research-Award.html>

Brief Description: The FY18 VRP IIRA is intended to support studies that will yield highly impactful discoveries or major advancements in the research and/or patient care of eye injury and/or visual dysfunction as related to military-relevant trauma. Research projects may focus on any phase of research (e.g., basic, translational, applied, clinical, observational), excluding clinical trials. The research idea or solution should be innovative, novel, or a significant advancement over existing ideas or solutions, as applicable.

The application should clearly state the type of trauma that is being addressed and describe how the project's potential immediate and long-range outcome(s)/product(s) will advance the understanding, prevention, diagnosis, mitigation, and/or treatment of eye injury or visual dysfunction associated with the trauma.

Awards: Total Funding Available: \$4,500,000

Proposal Deadline:

Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), September 4, 2018 • Invitation to Submit an Application: October 2018 • Application Submission Deadline: 11:59 p.m. ET, December 4, 2018)

Contact Information: CDPRP Help Desk; 301-682-5507 Email: help@eBRAP.org

Grant Program: NRL Long Range Broad Agency Announcement (BAA) for Basic and Applied Research

Agency: Department of Defense Naval Research Laboratory N00173-18-S-BA01

Website: <https://www.nrl.navy.mil/doing-business/Current-NRL-BAA>

Brief Description: The Naval Research Laboratory (NRL) The Naval Research Laboratory (NRL) is the Navy's corporate laboratory. NRL conducts basic and applied research for the Navy in a variety of scientific and technical disciplines. The basic research program is driven by perceptions about future requirements of the Navy. NRL conducts most of its research program at its own facilities but also funds some related research such as anticipated by this announcement. More extensive research support opportunities are available from the Naval Research Laboratory (NRL). NRL announcements may be accessed via the Internet at <https://www.nrl.navy.mil/doingbusiness/contracting-division/baa>. NRL is interested in receiving proposals for Long-Range Science and Technology (S&T) Projects which offer potential for advancement and improvement of Navy and Marine Corps operations. Readers should note that this is an announcement to declare NRL's broad role in competitive funding of meritorious research across a spectrum of science and engineering disciplines. A brief description of the NRL Program Codes and the science and technology thrusts that NRL is pursuing is provided below. Additional information can be found at the NRL website at <https://www.nrl.navy.mil/research/directorates-divisions/>. This announcement is an expression of interest only and does not commit the Government to make any award or to pay for any proposal preparation costs. The cost of proposal preparation for response to a BAA is not considered an allowable direct charge to any resultant contract or any other contract; however, it may be an allowable expense to the normal bid and proposal indirect cost specified in FAR 31.205-18.

Awards: Various

Proposal Deadline: May 9, 2019

Contact Information: Mary Johnson Contract Specialist Phone 202-767-2021

Department of Education

Grant Program: Institute of Education Sciences (IES): Education Research CFDA Number 84.305A

Agency: Department of Education ED-GRANTS-052118-001

Website: <https://www.gpo.gov/fdsys/pkg/FR-2018-05-21/pdf/2018-10802.pdf>

Brief Description: Each funding opportunity description is a synopsis of information in the Federal Register application notice. For specific information about eligibility, please see the official application notice. The official version of this document is the document published in the Federal Register. Free Internet access to the official edition of the Federal Register and the Code of Federal Regulations is available on GPO Access at: <http://www.access.gpo.gov/nara/index.html>. Please review the official application notice for pre-application and application requirements, application submission information, performance measures, priorities and program contact information.

For the addresses for obtaining and submitting an application, please refer to our Common Instructions for Applicants to Department of Education Discretionary Grant Programs, published in the Federal Register on February 12, 2018 (83 FR 6003) and available at www.gpo.gov/fdsys/pkg/FR-2018-02-12/pdf/2018-02558.pdf.

The dates when applications are available and the deadlines for transmittal of applications invited under this notice are indicated in the chart at the end of this notice and in the Requests for Applications (RFAs) that are posted at the following websites: <https://ies.ed.gov/funding>, <https://www.ed.gov/programs/edresearch/index.html>, and <https://www.ed.gov/programs/specialedresearch/index.html>.

Purpose of Program: In awarding these grants, the Institute of Education Sciences (Institute) intends to provide national leadership in expanding fundamental knowledge and understanding of (1) developmental and school readiness outcomes for infants and toddlers with or at risk for a disability, (2) education outcomes for all students from early childhood education through postsecondary and adult education, and (3) employment and wage outcomes when relevant (such as for students who engaged in career and technical, postsecondary, or adult education). The Institute's research grant programs are designed to provide interested individuals and the general public with reliable and valid information about education practices that support learning and improve academic achievement and access to education opportunities for all students. These interested individuals include parents, educators, students, researchers, and policymakers. In carrying out its grant programs, the Institute provides support for programs of research in areas of demonstrated national need.

Competitions in This Notice: The Institute will conduct nine research competitions in FY 2019 through two of its centers: The Institute's National Center for Education Research (NCER) will hold a total of five competitions--one competition in each of the following areas: Education research; education research and development centers; statistical and research methodology in education; partnerships and collaborations focused on problems of practice or policy; and low-cost, short-duration evaluation of education interventions.

Catalog of Federal Domestic Assistance (CFDA) numbers 84.305A, 84.305C, 84.305D, 84.305H, 84.305L, 84.324A, 84.324B, 84.324L, and 84.324N.

Awards: Up to \$4,000,000. Estimated total funding: \$115,000,000

Proposal Deadline: Aug 23, 2018 Application Package Available: June 21, 2018. Deadline for Transmittal of Applications: August 23, 2018

Contact Information: Julius Cotton ED Grants.gov FIND Systems Admin. Phone 202-245-6288 EducationGrantInquiries@ed.gov

Program Manager: Molly Faulkner-Bond e-Mail: Molly.Faulkner-Bond@ed.gov .

EPA

Grant Program: Practical Methods to Analyze and Treat Emerging Contaminants (PFAS) in Solid Waste, Landfills, Wastewater/Leachates, Soils, and Groundwater to Protect Human Health and the Environment

Agency: Environmental Protection Agency EPA-G2018-STAR-B1

EPA-G2018-STAR-B1, Practical Methods to Analyze and Treat Emerging Contaminants (PFAS) in Solid Waste, Landfills, Wastewater/Leachates, Soils, and Groundwater to Protect Human Health and the Environment

EPA-G2018-STAR-B2, Early Career: Practical Methods to Analyze and Treat Emerging Contaminants (PFAS) in Solid Waste, Landfills, Wastewater/Leachates, Soils, and Groundwater to Protect Human Health and the Environment

Website: <https://www.epa.gov/research-grants/practical-methods-analyze-and-treat-emerging-contaminants-pfas-solid-waste-landfills#Award>

Brief Description: The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking applications proposing research that will lead to: (1) better understanding and characterization of the types and quantities of current and historical per- and poly-fluoroalkyl substances (PFAS) and PFAS-containing waste associated with waste disposal (e.g., landfills), as well as media containing PFAS released from these activities (e.g., PFAS in leachate collected by landfills or PFAS leaching to subsurface soils and groundwater); (2) increased knowledge of the fate, transport, potential for degradation or other changes to PFAS, and their mobility during materials management (e.g., under different landfill conditions such as pH, temperature, moisture content) that facilitate or retard such transformation or movement; and (3) new or improved methods that are more effective, efficient (in cost, energy, etc.), and practical in controlling, treating, destroying, or removing PFAS in waste and wastewater, landfill leachates, biosolids, or environmental media. The main goal is to promote innovation in evaluating and managing PFAS in solid waste, landfills, and environmental media that will lead to improved decision making, management practices, and technical methods to minimize the risks to both humans and ecosystems.

This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects research. Human subjects research supported by the EPA is governed by EPA Regulation 40 CFR Part 26 (Protection of Human Subjects). This includes the Common Rule at subpart A and prohibitions and additional protections for pregnant women and fetuses, nursing women, and children at subparts B, C, and D. Research meeting the regulatory definition of intentional exposure research found in subpart B is prohibited by that subpart in pregnant women, nursing women, and children. Research meeting the regulatory definition of observational research found in subparts C and D is subject to the additional protections found in those subparts for pregnant women and fetuses (subpart C) and children (subpart D). All applications must include a Human Subjects Research Statement (HSRS, as described in Section IV.C.5.c of this solicitation), and if the project involves human subjects research, it will be subject to an additional level of review prior to funding decisions being made as described in Sections V.D and V.E of this solicitation.

Awards; Up to a total of \$900,000 for a regular award and up to a total of \$500,000 for an early career award; Available Funding: \$6,000,000

Submission Deadline: Full Application Submission Deadline: October 2, 2018

Contact Information: Technical Contact: [Intaek Hahn](mailto:hahn.intaek@epa.gov) (hahn.intaek@epa.gov); phone: 202-564-4377
Eligibility Contact: [Ron Josephson](mailto:josephson.ron@epa.gov) (josephson.ron@epa.gov); phone: 202-564-7823

Department of Energy

Grant Program: Advanced Solar Systems Integration Technologies Notice of Intent (NOI)

Agency: Department of Energy DE-FOA-0001986

Website: <https://eere-exchange.energy.gov/Default.aspx#FoaId2bbe24fe-f075-4d1b-8ab7-0df723807696>

Brief Description: The Office of Energy Efficiency and Renewable Energy (EERE) intends to issue, on behalf of the Solar Energy Technology Office, a Funding Opportunity Announcement (FOA) entitled “Advanced Solar Systems Integration Technologies”. This FOA supports the mission of the Solar Energy Technologies Office (SETO) which is to support early-stage research and development to improve the performance and flexibility of solar technologies that contribute to a reliable and resilient U.S. electric grid. The office invests in innovative research efforts that securely integrate more solar energy into the grid, enhance the use, storage and dispatch of solar energy, and lower solar electricity costs. DOE is committed to improving the affordability of energy technologies and strengthening the Energy Sector’s capability to withstand cyber and physical threats, including natural disasters. Improving the strategic location and situational awareness of solar systems can help ensure continuity of service in the face of widespread and coordinated threats. Developing innovative approaches to accelerate the transfer of solar system solutions that will improve Energy Sector resilience is also a priority.

Awards; This is a Notice of Intent

Submission Deadline: October 1, 2018

Contact Information: Clay L. Pfrangle seto.foa@ee.doe.gov

Grant Program: Machine Learning for Geothermal Energy

Agency: Department of Energy DE-FOA-0001956

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

Brief Description: The U.S. Department of Energy’s Geothermal Technology Office (GTO) Machine Learning for Geothermal Energy funding opportunity announcement (FOA) supports projects that will develop new analytical tools for finding and developing geothermal resources and establish the practice of machine learning in geothermal operations. The rapidly advancing field of Machine Learning (ML) offers substantial opportunities for technology advancement and cost reduction throughout the geothermal project lifecycle, from resource exploration to power plant operations. Under this funding opportunity, GTO is interested in two topic areas:

Topic 1: Machine Learning for Geothermal Exploration - GTO seeks projects that advance geothermal exploration through the application of machine learning techniques to geological, geophysical, geochemical, borehole, and other relevant datasets. Of particular interest to GTO are projects that will identify data acquisition targets and build community datasets for future work.

Topic 2: Advanced Analytics for Efficiency and Automation in Geothermal Operations - GTO seeks projects that apply advanced analytics to power plant and other operator datasets, with the goal of improving operations and resource management.

For questions and answers pertaining to this FOA, please reference the DE-FOA-0001956 Machine Learning FAQ Log in FOA Documents.

Awards; Up to \$700,000; Available Funding: \$3,600,000

Submission Deadline: Concept Paper Submission Deadline: 8/23/2018 5:00 PM ET

- Full Application Submission Deadline: 11/1/2018 5:00 PM ET

Contact Information: EERE-ExchangeSupport@hq.doe.gov

For Exchange related support and issues.

- machinelearninggeo@ee.doe.gov For questions regarding the FOA

Grant Program: Integrated University Program (IUP): Enabling Technologies and Innovation (ETI) & Monitoring, Technology and Verification (MTV)

Agency: Department of Energy DE-FOA-0001875

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

Brief Description: The mission of the U.S. Department of Energy (DOE), National Nuclear Security Administration (NNSA), Office of Defense Nuclear Nonproliferation Research and Development (DNN R&D) is to support U.S. national and nuclear security objectives in reducing global nuclear security threats through the innovation of unilateral and multi-lateral technical capabilities to detect, identify, and characterize: 1) foreign nuclear weapons programs, 2) illicit diversion of special nuclear materials, and 3) global nuclear detonations. Section 313 of the Omnibus Appropriations Act of 2009 (H.R. 1105, P.L. 111-8) created the Integrated University Program (IUP). DNN R&D is one of the three participants in this program and is continuing a nuclear science and engineering program, including nuclear security, to support multi-year research projects. The role of Institutions of Higher Education (IHE; as defined in Section III.A. of the FOA) for nuclear security research and development is to innovate and develop some of the most challenging basic aspects of new technology and methods. Once these basic aspects have been proven at the IHE level, the DOE/NNSA National Laboratories and/or National Security Sites/Complexes can fulfill their unique role to perform mission-specific research and development that improves on capabilities until they are either adopted by operational enterprises or transitioned into private industry for commercialization. Transparently and effectively linking these IHE and DOE/NNSA National Laboratory and/or National Security Sites/Complexes roles represents the core of how DNN R&D proposes to meet its objectives. The intent of this FOA is to award TWO separate five-year cooperative agreements to consortia of accredited IHEs to allow them to receive and administer funds for student and faculty research, fellowships, and scholarship funding awarded by DOE/NNSA, DNN R&D. Each cooperative agreement will be awarded to a consortium of IHEs which will include the participation of DOE/NNSA National Laboratories and/or National Security Sites/Complexes as a consortium-member(s). Individual consortium-member IHEs shall make specific contributions and shall receive specified portions of the funding. The consortium may include student and research fellows and must have a long-term objective of building expertise in nuclear nonproliferation detection. Research results should be incorporated readily into IHE curricula. Students, faculty, and researchers must be able to work unencumbered while moving across what are now organizational and bureaucratic boundaries of the academic and governmental facilities engaged in the consortium, while properly protecting critical information and materials. The consortium should establish reciprocal arrangements between the lead IHE and other IHEs as well as relationships with appropriate DOE/NNSA National Laboratories and/or National Security Sites/Complexes.

Awards; Up to \$25,000,000; Available Funding: \$50,000,000

Submission Deadline: Sep 04, 2018 Application deadline is September 4, 2018, 11:59PM Eastern Standard Time.

Contact Information: Grant Specialist Alex Trejo 505-845-5472 alex.trejo@nnsa.doe.gov

NASA

Grant Program: ROSES 2018: Cassini Data Analysis Program: PDS Cassini Data Release 54

Agency: NASA NNH18ZDA001N-CDAPR54

Website: <https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BE10A322F-0907-1754-8893-15F97479CD52%7D&path=open&method=init>

Brief Description: This National Aeronautics and Space Administration (NASA) Research Announcement (NRA), Research Opportunities in Space and Earth Sciences (ROSES) – 2018, solicits basic and applied research in support of NASA's Science Mission Directorate (SMD). ROSES is an omnibus NRA, with many individual program elements, each with its own due dates and topics. All together these cover the wide range of basic and applied supporting research and technology in space and Earth sciences supported by SMD. Awards will be made as grants, cooperative agreements, contracts, and inter- or intraagency transfers, depending on the nature of the work proposed, the proposing organization, and/or program requirements. The typical period of performance for an award is three years, but some programs may allow up to five years and others specify shorter periods. Organizations of every type, domestic and foreign, Government and private, for profit and not-for-profit, may submit proposals without restriction on teaming arrangements. Note that it is NASA policy that all research involving non-U.S. organizations will be conducted on the basis of no exchange of funds.

Awards: Various

Proposal Deadline: September 18, 2018

Contact: Max Bernstein Planetary Science Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Email: max.bernstein@nasa.gov

Grant Program: ROSES 2018: DSCOVER Science Team

Agency: NASA NNH18ZDA001N-DSCOVER

Website: <https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7B9C06DA13-5411-0043-725E-24CAB3A588F6%7D&path=open&method=init>

Brief Description: NASA's Earth Science Research Program supports research activities that address the Earth system and seek to characterize its properties on a broad range of spatial and temporal scales, to understand the naturally occurring and human-induced processes that drive them, and to improve our capability for predicting its future evolution. The focus of the Earth Science Research Program is the use of space-based measurements to provide information not available by other means. NASA's program is an end-to-end one that starts with the development of observational techniques and the instrument technology needed to implement them; tests them in the laboratory and from an appropriate set of in situ, surface-, ship-, balloon-, aircraft-, and/or space-based platforms; uses the results to increase basic process knowledge; incorporates results into complex computational models that can be used to more fully characterize the present state and future evolution of the Earth system; and develops partnerships with other national and international organizations that can use the generated information in environmental forecasting and in policy, business, and management decisions. The scientific documentation underlying the Earth Science Research Program provides a comprehensive background for the science solicited here. The Research Program addresses NASA's Strategic Goal 2.1 to "Advance Earth System Science to meet the challenges of climate and environmental change." (See the most recent NASA Strategic Plan: https://smd-prod.s3.amazonaws.com/science-red/s3fpublic/atoms/files/FY2014_NASA_StrategicPlan_508c.pdf). In particular, it addresses the more specific Science Goals (see the Science Plan for NASA's Science Mission Directorate (hereafter the NASA Science Plan), also available at https://smdprod.s3.amazonaws.com/science-red/s3fpublic/atoms/files/2014_Science_Plan_PDF_Update_508_TAGGED_1.pdf)

Awards: Various

Notice of Intent: July 09, 2018

Proposal Deadline: September 04, 2018

Contact: Richard S. Eckman Earth Science Division

NASA Headquarters; Telephone: 202-358-2567 ; Email: Richard.S.Eckman@nasa.gov

National Endowment of Humanities

Grant Program: Humanities Connections Implementation Grants

Agency: National Endowment of Humanities

Website: <https://www.neh.gov/grants/education/humanities-connections-implementation-grants>

Brief Description: The Humanities Connections program seeks to expand the role of the humanities in undergraduate education at two- and four-year institutions. Awards will support innovative curricular approaches that foster productive partnerships among humanities faculty and their counterparts in the social and natural sciences and in pre-service or professional programs (such as business, engineering, health sciences, law, computer science, and other technology-driven fields), in order to encourage and develop new integrative learning opportunities for students.

Competitive applications will demonstrate

- that the proposed curricular projects address significant and compelling topics or issues in undergraduate education at the applicant institution(s);
- that these projects develop the intellectual skills and habits of mind cultivated by the humanities; and
- that faculty and students will benefit from meaningful collaborations in teaching and learning across disciplines as a result of the project.

Humanities Connections projects have four core features:

1. integration of the subject matter, perspectives, and pedagogical approaches of two or more disciplines (with a minimum of one in and one outside of the humanities);
2. collaboration between faculty from two or more separate departments or schools at one or more institutions;
3. experiential learning as an intrinsic part of the curricular plan; and
4. long-term institutional support for the proposed curriculum innovation(s).

Award: Up to \$100,000

Proposal Deadline: October 17, 2018

Contact: Contact the staff of NEH's Division of Education Programs at 202-606-8337 or humanitiesconnections@neh.gov.

Michael J. Fox Foundation

Grant Program: Research and Open Innovation

Agency: Michael J. Fox Foundation

Website: <https://www.michaeljfox.org/research/apply-for-grant.html>

Brief Description: The Michael J. Fox Foundation works tirelessly to accelerate promising research toward breakthroughs for Parkinson's patients. While our strong emphasis is on funding translational and clinical research, we also support high-risk/high-reward discovery work. Learn more about our priorities on our [Research Strategy page](#).

In addition to funding, awardees benefit from working with our internal research staff and broad network of scientific and industry advisors.

Award: Various

Funding Webinar: September 6, 2018

Pre-Proposal Deadline: September 26, 2018

University Nomination Process and Contact: If interested, please send an email to Eric Blitz (eric.blitz@njit.edu) and Atam Dhawan (dhawan@njit.edu).

ACI Foundation

Grant Program: Concrete Research

Agency: ACI Foundation

Website: <https://www.acifoundation.org/research>

Brief Description: The ACI Foundation's Concrete Research Council (CRC) seeks to advance the concrete industry through the funding of concrete research projects that further the knowledge and sustainability of concrete materials, construction, and structures in coordination with ACI Committees where possible.

Awards: Up to \$50,000 may be approved per project for direct costs;

Proposal Deadline: December 1, 2018

Contact: Please let Eric Blitz (eric.blitz@njit.edu) and Atam Dhawan (dhawan@njit.edu) know if you are interested in applying.

Samsung

Grant Program: The Global Research Outreach (GRO) Program

Agency: Samsung

Website: <https://www.sra.samsung.com/partnerships/university/>

Brief Description: Theme: EXPLAINABLE DEEP LEARNING MODELS - Sub Theme: Explainable Models in Multi-modal Applications The task of explaining Deep Learning (DL) models has gained a lot of interest from the research community in recent times. In this GRO, we propose studying explainability of DL models, specifically via two problems: (a) Explainable Multi-modal Visual Dialog: There are many scenarios in mobile phone or desktop usage where a user inspects an image (e.g., a picture shared on the phone or an image obtained while browsing the web) and asking questions about it (e.g., where was this picture taken) – this is the problem of Visual Question Answering (VQA). The user may also ask for explanations for the answers generated in VQA (e.g., why you think so) – this is the task of Explainable Question Answering (XQA). However, while using a conversational assistant like Samsung Bixby, the user may be involved in a multi-modal dialog with the assistant, using text input, speech, etc. Those additional user input may contain rich context information for the assistant to understand and digest. As the assistant interacts with the user in a conversation across multiple modalities, the user may ask for explanations at different stages -- we call this the problem of Explainable Multi-modal Visual Dialog. (b) Explainable Recommendations: The Bixby assistant often makes shopping suggestions or other purchase recommendations to the user (e.g., based on an image that is taken from the camera album, based on a spoken purchase request made by the user, etc.). One of the research goals in such a recommendation system could be explaining the underlying reason of the recommendations made during immersive interactive experiences (e.g., when shopping for items online using Bixby vision, using the point-and-shoot camera).

Theme: Beyond 5G Communication Systems - Sub Theme: Components for Terahertz Communication Systems Terahertz (THz) frequency band, 0.1 to 10 THz, offers vast spectrum resources to support >100Gbps for beyond 5G communication systems. FCC is currently considering to open the 95 - 475 GHz range for commercial use. Key component challenges for THz communication are low noise/high gain amplification, high linearity transmit power generation, low noise oscillators, and THz frequency conversion. Short wavelengths (3mm @ 100GHz) THz present challenges in conventional antenna element fabrication, while on-chip antennas traditionally exhibit reduced efficiency. Additional challenges arise from increased path loss and the resulting increase in antennas required for sufficient link margin. The latter offers opportunities in spatial spectrum reuse by taking advantage of the resulting pencil-beam transmissions.

Awards: Financial sponsorship for one year, in amounts up to \$120,000

Contact: Please let Eric Blitz (eric.blitz@njit.edu) and Atam Dhawan (dhawan@njit.edu) know if you are interested in applying.

Simons Foundation

Grant Program: Simons Investigator program in the Mathematical Modeling of Living Systems (MMLS)

Simons Foundation Fellowships in Math and Theoretical Physics

Agency: Simons Foundation

Website: <https://www.simonsfoundation.org/mathematics-physical-sciences/simons-investigators/simons-investigator-program-nominations/>

<https://www.simonsfoundation.org/grant/simons-fellows-in-theoretical-physics/?tab=rfa> -- Simons Fellows in Theoretical Physics.

<https://www.simonsfoundation.org/grant/simons-fellows-in-mathematics/?tab=rfa> --- Simons Fellows in Mathematics

Brief Description: The Simons Foundation invites nominations for Simons Investigators in the Mathematical Modeling of Living Systems (MMLS), a joint program of the Mathematics and Physical Sciences and Life Sciences divisions of the Simons Foundation. Investigators in MMLS are outstanding scientists, often with mathematics or theoretical physics backgrounds, now engaged in research based on mathematical modeling in the life sciences.

New approaches in mathematically based modeling are making increasingly important contributions to the life sciences. The MMLS program aims to support theoretical approaches making important contributions to the life sciences and, thus, to foster a scientific culture of theory-experiment collaborations similar to that prevailing in physics. To encourage researchers to pursue this endeavor, the MMLS program will provide a long-term, stable base of support, enabling a focus on model based approaches to important issues in the life sciences. A broad spectrum of research areas within the life sciences will be considered, ranging from cellular-level issues of organization, regulation, signaling and morphogenic dynamics to the properties of organisms and ecology, as well as neuroscience and evolution; however, preference will be given to areas in which modeling approaches are less established and, for this reason, bioinformatics- and genomics-related proposals fall outside the scope of the program. In all cases, preference will be given to work developing deep theoretical ideas relevant to experiments, suggesting new questions and new classes of experiments, introducing important, new concepts, and explaining data.

Theory must connect with experiment, and candidates should articulate their own views about the nature of this connection, rather than accepting conventional wisdom; theory is more than data analysis. The program explicitly does not support translational or specifically human disease-related research.

Eligibility: To be eligible to be nominated for an Investigator in MMLS award, a scientist must be engaged in research related to the MMLS program and must not previously have been a Simons Investigator. He/she must have a primary appointment as a faculty member (tenured or non-tenured) at an educational institution in the United States, Canada, the United Kingdom or Ireland, on a campus within these countries, and the primary department affiliation must have a Ph.D. program. At the time of the appointment start date, an Investigator should be in the early stages of an academic career and must be within ten years of the start of his/her first faculty position.

Award: A Simons Investigator in MMLS is appointed for a period of five years for up to \$132,000 per year. Appointments will begin August 1, 2019. An Investigator will receive research support in the amount of \$100,000 per year. An additional \$10,000 per year will be provided to the Investigator's department. The Investigator's institution will receive an additional 20 percent per year in indirect costs.

Proposal Deadline: The deadline to submit nominations is October 31, 2018, at 11:59:59 p.m. EST.

University Nomination Process and Contact: If interested, please send an email to Eric Blitz (eric.blitz@njit.edu) and Atam Dhawan (dhawan@njit.edu) and copy to college dean to discuss the nomination before August 1, 2018.

Grant Program: Simons Foundation Fellowships in Math and Theoretical Physics

Agency: Simons Foundation

Website:

<https://www.simonsfoundation.org/grant/simons-fellows-in-theoretical-physics/?tab=rfa> -- Simons Fellows in Theoretical Physics.

<https://www.simonsfoundation.org/grant/simons-fellows-in-mathematics/?tab=rfa> --- Simons Fellows in Mathematics

Brief Description: The Simons Foundation's Mathematics and Physical Sciences (MPS) division invites applications for the Simons Fellows in Theoretical Physics program, which is intended to make sabbatical leaves more productive by extending them to a full academic year. The MPS division's scientific advisory board will advise the foundation on the selection of awardees. Awards will be based on the applicant's scientific accomplishments in the five-year period preceding the application and on the potential scientific impact of the work to be done during the leave period.

Eligibility Requirements: A Simons Fellow in Theoretical Physics must have a teaching or administrative tenured position at the same U.S. or Canadian college or university within the physics or related department at the time of application, throughout the course of the sabbatical and in the term following the leave. This must be the applicant's primary position. In addition, a Fellow must have an active current research program. Fellows cannot simultaneously hold a Simons Investigator award.

Award: A Simons Fellowship in Theoretical Physics/Mathematics provides salary replacement for up to 50 percent (up to a maximum of \$100,000) of the Fellow's current academic-year salary, whether normally paid over 9 or 12 months, and up to \$25,000 for expenses related to the leave. The Fellow's home institution will receive *an additional* 20 percent overhead on allowable expenses. Please note that the foundation's indirect cost policy allows up to 20 percent of direct cost expenditures. Any unspent funds at the end of the award must be returned to the Simons Foundation.

Proposal Deadline: September 27, 2018

University Nomination Process and Contact: If interested, please send an email to Eric Blitz (eric.blitz@njit.edu) and Atam Dhawan (dhawan@njit.edu) and copy to college dean to discuss the nomination before August 1, 2018.

Whitehall Foundation

Grant Program: Research Grants in Neurology

Agency: Whitehall Foundation

Website: <http://www.whitehall.org/grants/>

Brief Description: Research grants are available to established scientists of all ages working at accredited institutions in the United States. Applications will be judged on the scientific merit and the innovative aspects of the proposal as well as on the competence of the applicant. Research grants of up to three years will be provided. A renewal grant with a maximum of two years is possible, but it will be awarded on a competitive basis. Research grants will not be awarded to investigators who have already received, or expect to receive, substantial support from other sources, even if it is for an unrelated purpose.

Award: Research grants normally range from \$30,000 to \$75,000 per year.

Proposal Deadline: October 1, 2018

University Nomination Process and Contact: If interested, please send an email to Eric Blitz (eric.blitz@njit.edu) and Atam Dhawan (dhawan@njit.edu).

BrightFocus Foundation

Grant Program: Alzheimer's Disease Research Program; Macular Degeneration Research Program; National Glaucoma Research Program

Agency: BrightFocus Foundation

Website: <https://www.brightfocus.org/grants/types-grants>

Brief Description: Alzheimer's Disease Research Program

The ADR program offers two types of awards:

Standard Awards

The standard award provides significant funding for researchers who have already generated some amount of preliminary data, but are often required to demonstrate additional, significant progress before they can apply to governmental or industrial funding agencies.

- Award Amount: \$300,000
- Duration: 3 years

Postdoctoral Fellowship Awards

Postdoctoral fellowship awards are intended for young researchers in their final stages of mentored training. These awards fund projects in an established laboratory that will serve as the basis for the applicant's own independent research career.

- Award Amount: \$200,000
- Duration: 2 years

Macular Degeneration Research Program

Standard Awards

The standard award provides significant funding for researchers who have already generated some amount of preliminary data, but are often required to demonstrate additional, significant progress before they can apply to governmental or industrial funding agencies.

- Maximum award value: \$200,000
- Maximum duration: 2 years

National Glaucoma Research Program

Standard Awards

The standard award provides significant funding for researchers who have already generated some amount of preliminary data, but are often required to demonstrate additional, significant progress before they can apply to governmental or industrial funding agencies.

- Award Amount: \$200,000
- Maximum Duration: 2 years

Proposal Deadline: September 5, 2018




University Nomination Process and Contact: If interested, please send an email to Eric Blitz (eric.blitz@njit.edu) and Atam Dhawan (dhawan@njit.edu).

Streamlyne Question of the Week

Question: How do I see the *Action List* of pending items in workflow?

Answer: Streamlyne Research will route you to the Action List. The Action List is the jumping-off page for all Streamlyne functionality. The Action List occupies the center of the page. Each line on the Action List represents a pending workflow item, requiring some sort of action from you. (Page 3 of the New User

Manual posted on the Research website <http://www.njit.edu/research/sites/research/files/StreamlyneNewUserManualCommonElements.pdf>). The Menu Bar remains fixed to your primary Streamlyne Research tab regardless of where you are in the application. This is your primary means of navigation in the application.

- Click the List button  to return to the Portal Page and Action List at any point.
- When you complete an action, the item is moved to the Outbox. Click the Outbox button  to review all items on which you have taken action.
- Click the Magnifying Glass  to access the Document Search function.

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

Streamlyne Information

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

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

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

How-to-do-Videos

New "How to Do" videos have been posted on the research website <http://www5.njit.edu/research/streamlyne/>. The videos show step-by-step process on the following tasks:

- ◆ [How to Begin Proposal Submission in Streamlyne](#)
- ◆ [How to Input Proposal Budget](#)
- ◆ [How to Process Approvals](#)
- ◆ [How to Upload Proposal Attachments](#)
- ◆ [How to Search for a Proposal that is in Route](#)
- ◆ [Difference Between "Prime Sponsor Code" and "Sponsor Code"](#)
- ◆ [How to Select an RR Budget, RR Sub-award or Modular Budget](#)
- ◆ [How to Add a Student/Summary](#)
- ◆ [Participant Support Categories](#)
- ◆ [Supplies Specific Category Materials](#)
- ◆ [How to Create a Modular Budget](#)

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

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

Cristo Leon, CSLA Director of Research; (973) 596-6426; cristo.e.yanezleon@njit.edu

Sean Andrews, YWCC Director of Research; (973) 596-5352; sean.t.andrews@njit.edu

Iris Pantoja, NCE, CoAD and MTSM Project Manager; 973-596-4483; irp3@njit.edu

Need Information about Funding?

Finding Research Opportunities and Collaborations (FROC)

Walk-In Open-Hour Discussion with SVPR Over Tea

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

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

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

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

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

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

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