

# NJIT Research Newsletter

Issue: ORN-2018-40

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**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:** Algorithms for Threat Detection (ATD); Gen-4 Engineering Research Centers (ERC); Emerging Frontiers in Research and Innovation 2019 (EFRI-2019); Accelerating Research through International Network-to-Network Collaborations (AccelNet); Joint DMS/NLM Initiative on Generalizable Data Science Methods for Biomedical Research (DMS/NLM); Enabling Early-Stage Secure and Trustworthy Cyberspace (SaTC) Socio-Technical Interdisciplinary Collaborations; Understanding the Rules of Life: Epigenetics; Understanding the Rules of Life: Building a Synthetic Cell: An Ideas Lab Activity; Big Data Regional Innovation Hubs (BD Hubs); Formal Methods in the Field (FMitF); Cyberinfrastructure for Biological Research (CIBR)

**NIH:** BRAIN Initiative: Research on the Ethical Implications of Advancements in Neurotechnology and Brain Science (R01); Innovation Corps (I-Corps™) at NIH Program for NIH and CDC Translational Research; Basic Neurodevelopmental Biology of Brain Circuits and Behavior (R21); BRAIN Initiative Cell Census Network (BICCN); Scalable Technologies and Tools for Brain Cell Census (R01); NIH Blueprint Program for Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (R25); Imaging - Science Track Award for Research Transition (I/START) (R03); BRAIN Initiative: Team-Research BRAIN Circuit Programs - TeamBCP (U19)

**Department of Defense/US Army/DARPA/ONR:** Machine Common Sense (MCS); Accelerated Molecular Discovery (AMD); Electronic Warfare Technology; Microsystems Technology Office (MTO); AFRL/RXC Structural Materials Open BAA; Information Innovation Office (I2O); 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:** Transformational Sensing Capabilities for Monitoring the Subsurface; Advanced Systems Integration for Solar Technologies; Big Data Analysis of Synchrotron Data; Advanced Solar Systems Integration Technologies Notice of Intent (NOI)  
**NASA:** Solar System Exploration Research Virtual Institute Cooperative Agreement Notice (SSERVI CAN-3); Use of the NASA Physical Sciences Informatics System - Appendix E National Endowment of Humanities: Humanities Connections Implementation Grants  
**National Endowment of Humanities:** Collaborative Research Grants  
**Rotary Foundation:** Alzheimer's Research  
**Marine Biological Laboratory:** Grass Fellowships in Neuroscience  
**Gates Foundation:** Grand Challenges Explorations

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## **Special Announcement**

### **Research Commercialization Workshop for Women**

You are invited to join with other women faculty on the morning of **Monday, October 29**, for the first in a series of workshops on strategies for commercializing your research. The event takes place from **8:30-10:30 am in Eberhardt 112** and includes breakfast and an opportunity to network with other women faculty researchers. [Note change of date.] The event will begin with an overview of non-traditional sources of funding and a discussion of how commercialization can potentially expand the impact of your academic research. Then BME Professor Tara Alvarez will discuss how she recently translated her research program into a new commercial venture (OculoMotor Technologies Inc.). There will also be an opportunity for you to discuss your own research with other faculty and share ideas about collaboration and entrepreneurship. The workshop series is being co-sponsored by the Murray Center for Women in Technology and NJIT Technology and Enterprise Development. Please RSVP by clicking [HERE](#).

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### **Limited Submission Internal Competition for NSF MRI and NRT Programs**

**Grant Program: NSF Major Research Instrumentation Program: (MRI)**

**Agency: National Science Foundation NSF 18-513**

**RFP Website:** <https://www.nsf.gov/pubs/2018/nsf18513/nsf18513.htm>

**Brief Description:** The Major Research Instrumentation (MRI) Program serves to increase access to multi-user scientific and engineering instrumentation for research and research training in our Nation's institutions of higher education and not-for-profit scientific/engineering research organizations. An MRI award supports the acquisition or development of a multi-user research instrument that is, in general, too costly and/or not appropriate for support through other NSF programs.

MRI provides support to acquire critical research instrumentation without which advances in fundamental science and engineering research may not otherwise occur. MRI also provides support to develop next-generation research instruments that open new opportunities to advance the frontiers in science and engineering research. Additionally, an MRI award is expected to enhance research training of students who will become the next generation of instrument users, designers and builders.

An MRI proposal may request up to \$4 million for either acquisition or development of a research instrument. Beginning with the FY 2018 competition, each performing organization may submit

in revised “Tracks” as defined below, with no more than two submissions in Track 1 and no more than one submission in Track 2.

- Track 1: Track 1 MRI proposals are those that request funds from NSF greater than or equal to \$100,000<sup>1</sup> and less than \$1,000,000.
- Track 2: Track 2 MRI proposals are those that request funds from NSF greater than or equal to \$1,000,000 up to and including \$4,000,000.

Consistent with the America COMPETES Act of 2007 (Public Law 110-69), cost sharing of precisely 30% of the total project cost is required for Ph.D.-granting institutions of higher education and for non-degree-granting organizations. Non-Ph.D.-granting institutions of higher education are exempt from the cost-sharing requirement and cannot include it. National Science Board policy prohibits voluntary committed cost sharing.

***Please see the solicitation text for organizational definitions used by the MRI program.***

The MRI Program especially seeks broad representation of PIs in its award portfolio, including women, underrepresented minorities and persons with disabilities. Since demographic diversity may be greater among early-career researchers the MRI program also encourages proposals with early-career PIs and proposals that benefit early-career researchers.

**Awards Range:** \$100,000-\$4 million; **Anticipated Funding Amount:** \$75,000,000

**Letter of Intent:** Not Required

**Submission Deadline:** January 01, 2019 - January 22, 2019

**Limit on Number of Proposals per Organization:**

Three (3) as described below. Potential PIs are advised to contact their institutional office of research regarding processes used to select proposals for submission.

The MRI program requires that an MRI-eligible organization may, as a performing organization, submit or be included as a significantly funded <sup>[3]</sup> subawardee in no more than three MRI proposals. Beginning with this competition, each performing organization is now limited to a maximum of three proposals in revised “Tracks” as defined below, with no more than two submissions in Track 1 and no more than one submission in Track 2. Any MRI proposal may request support for either the acquisition or development of a research instrument. Within their submission limit, NSF strongly encourages organizations to submit proposals for innovative development projects.

***Any MRI proposal may request support for either the acquisition or development of a research instrument.***

- Track 1: Track 1 MRI proposals are those that request funds from NSF greater than or equal to \$100,000<sup>1</sup> and less than \$1,000,000.
- Track 2: Track 2 MRI proposals are those that request funds from NSF greater than or equal to \$1,000,000 up to and including \$4,000,000.

Note: The 30% cost-sharing requirement applies to only the portion of the total project cost budgeted to non-exempt organizations, including those participating through subawards. When required, cost-sharing must be precisely 30%. Cost sharing is required for Ph.D.-granting institutions of higher education and for non-degree-granting organizations. Non-Ph.D.-granting institutions of higher education are exempt from cost-sharing and cannot provide it. National Science Board policy is that voluntary committed cost sharing is prohibited. See section V.B. for specific information on cost-sharing calculations and the solicitation text for definitions of organizational types used for the MRI program.

[3] An unfunded collaboration does not count against the submission limit. Inclusion as a funded subawardee on a development proposal at a level in excess of 20% of the total budget requested from NSF, or as a funded subawardee, when allowed, on any acquisition proposal, will be counted against an organization's proposal submission limit. Separately submitted linked collaborative proposals count against the submission limit of each of the submitting organizations. However, if a subaward to an organization in a *development proposal* is 20% or less of the proposal's total budget request from NSF, the subawardee's submission limit will not be affected. For subawards within a linked collaborative

proposal, the 20% threshold applies to the budget request from NSF in the proposal containing the subaward(s), not to the combined budget request from NSF for the collaborative project.

**Internal Competition Deadline to College Dean's Office: November 1, 2018:** Please submit up to 5 pages pre-proposal white paper to your respective Dean by November 1, 2018 in the following format. College level reviews will be conducted by Deans to forward recommendations for up to 2 proposals to the Office of Research and Development by November 7, 2018. The final selection will be announced by November 15, 2018. The following format for the pre-proposal is suggested which is consistent with actual proposal guidelines and review criterion:

1. Cover Sheet (not counted in the page limit):
  - a. Title of the project proposal
  - b. Track Type: I or II
  - c. PI name and affiliation and contact information
  - d. Co-PIs name and affiliation
  - e. Additional users or any consortium information, if applicable
  - f. Date submitted to College Dean
2. Project Summary

Each proposal must contain a summary of the proposed project not more than one page in length. The Project Summary consists of an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity.

3. Proposal Description covering the subsections (a)-(e) as posted on the previous RFP on <https://www.nsf.gov/pubs/2018/nsf18513/nsf18513.htm> with the section:

(a) **a1. Instrument Location and Type**

**a2. ONLY REQUIRED FOR DEVELOPMENT PROPOSALS: Justification for submission as a Development proposal**

- (b) Research Activities to be Enabled
  - (c) Description of the Research Instrumentation and Needs
  - (d) Broader Impacts (Including Impact on Research and Training Infrastructure)
  - (e) Management Plan
4. Preliminary Budget and Budget Justification; and Required Cost-Sharing
  5. Brief biographical sketch of PI with a brief description of current and previous accomplishments.

For pre-proposal review, the NSF MRI proposal review criterion may be used to help faculty receive some feedback on their proposals that may be helpful for their final or future proposal submissions. The merit review criterion as posted on the RFP is:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes

***Instrument Acquisition Proposals.***

- The extent to which the instrument is used for multi-user, shared-use research and/or research training.
- Whether the management plan demonstrates sufficient commitment and technical expertise for effective scheduling and usage of the instrument.
- The organization's commitment to ensuring successful operations and maintenance over the expected lifetime of the instrument.
- Whether the research to be enabled is compelling and justifies the instrument request.
- Whether the budget request is appropriate and well justified.
- if student involvement is in the form of direct support for operations and maintenance of the instrument, reviewers will be asked to evaluate the involvement in terms of both instrument needs and the training of the next generation of instrumentalists.

- For instrument acquisition proposals of \$1 million or above, the potential impact of the instrument on the research community of interest at the regional or national level, if appropriate.

***Instrument Development Proposals:***

- The appropriateness of submission as a development proposal.
- The need for development of a new instrument. Will the proposed instrument enable enhanced performance over existing instruments, or new types of measurement or information gathering? Is there a strong need for the new instrument in the larger user community to advance new frontiers of research?
- The adequacy of the project's management plan. Does the plan have a realistic schedule that is described in sufficient detail to be assessed? Are mechanisms described to mitigate and deal with potential risks?
- The availability of appropriate technical expertise to design and construct the instrument. If direct support for student involvement in development efforts is requested, reviewers will be asked to evaluate the involvement in terms of both project needs and training the next generation of instrumentalists.
- The appropriateness of the cost of the new technology.

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**Limited Submissions Internal Competitions: NSF NRT Program**

**Grant Program: NSF National Science Foundation Research Traineeship (NRT) Program**

**Agency: National Science Foundation NSF 18-507**

**RFP Website:** <https://www.nsf.gov/pubs/2018/nsf18507/nsf18507.htm>

**Brief Description:** The NSF Research Traineeship (NRT) program is designed to encourage the development and implementation of bold, new, and potentially transformative models for STEM graduate education training. The NRT program seeks proposals that explore ways for graduate students in research-based master's and doctoral degree programs to develop the skills, knowledge, and competencies needed to pursue a range of STEM careers.

The program is dedicated to effective training of STEM graduate students in high priority interdisciplinary research areas, through the use of a comprehensive traineeship model that is innovative, evidence-based, and aligned with changing workforce and research needs. For FY2018, proposals are requested in any interdisciplinary research theme of national priority, with special emphasis on two high priority areas: (1) Harnessing the Data Revolution (HDR) and (2) Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS). HDR is expected to continue as a priority research area for FY2019 and FY2020 competitions, along with a new priority area to be announced in 2018.

The NRT program addresses workforce development, emphasizing broad participation, and institutional capacity building needs in graduate education. Strategic collaborations with the private sector, non-governmental organizations (NGOs), government agencies, national laboratories, field stations, teaching and learning centers, informal science centers, and academic partners are encouraged. NRT especially welcomes proposals that will pair well with the efforts of NSF INCLUDES to develop STEM talent from all sectors and groups in our society ([https://www.nsf.gov/news/special\\_reports/nsfincludes/index.jsp](https://www.nsf.gov/news/special_reports/nsfincludes/index.jsp)). Collaborations are encouraged between NRT proposals and existing NSF INCLUDES projects, provided the collaboration strengthens both projects.

**Limited Number of Submission: 2:** An eligible organization may participate in two proposals per competition. **Participation includes serving as a lead organization, non-lead organization, or subawardee on any proposal.** Organizations participating solely as evaluators on projects are excluded from this limitation. Proposals that exceed the institutional eligibility limit (beyond the first two



submissions based on timestamp) will be returned without review regardless of the institution's role (lead organization, non-lead collaborative, or subawardee) in the returned proposal.

**Limit on Number of Proposals per PI or Co-PI: 1:** An individual may serve as Lead Principal Investigator (PI) or Co-PI on only one proposal submitted to the NRT program per annual competition. Proposals that exceed the PI/Co-PI eligibility limit (beyond the first submission based on timestamp), will be returned without review regardless of the individual's role (PI or co-PI) in the returned proposal.

**Awards Range:** Standard Grant; **Anticipated Funding Amount:** \$36,100,000

**Letter of Intent:** Submission of Letters of Intent is required. Please see the full text of this solicitation for further information.

**Submission Deadline: Letter of Intent Due Date(s) (required)** (due by 5 p.m. submitter's local time): November 26, 2018 - December 06, 2018

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time): February 06, 2019

**Contact:** Laura B. Regassa, telephone: (703) 292-2343, email: [lregassa@nsf.gov](mailto:lregassa@nsf.gov)

- Tara L. Smith, telephone: (703) 292-7239, email: [tsmith@nsf.gov](mailto:tsmith@nsf.gov)
- Stephen Mulkey, telephone: (703) 292-8954, email: [smulkey@nsf.gov](mailto:smulkey@nsf.gov)

**Internal Competition Deadline to College Dean's Office: November 15, 2018:** Please submit a pre-proposal for internal competition in the following format to your Dean. Deans are requested to forward the pre-proposals with their recommendations to the Office of Research for institutional review by November 22, 2018. The pre-proposal should include:

**Section 1. Letter of Intent (NSF Format):** Submit a one-page LOI through FastLane during the open submission window with the following information:

- The name and departmental affiliation of the Principal Investigator (PI).
- The name(s) and departmental affiliation(s) of the Co-PI(s) and others composing the Core Participants (maximum 10).
- The names(s) of any other (non-lead) participating institutions or organizations. If the sole contribution of the partner is evaluation, then designate as "*Evaluation: institutional or organizational name*"; evaluators are exempt from institutional eligibility limits (see section IV). If there are partnering institutions, then the LOI MUST include the appropriate mandatory statement at the end of the project synopsis (see Project Synopsis below).
- Project Title: The title must begin with "NRT-HDR:" or "NRT-INFIEWS:" for projects targeting the Harnessing the Data Revolution or Nexus of Food, Energy, and Water Systems research areas, respectively. Titles for projects addressing another interdisciplinary theme of national importance must begin with "NRT:". Any collaborative project with proposals from multiple institutions should begin with "Collaborative Research:". For example, a collaborative proposal in INFIEWS would have a title beginning "Collaborative Research: NRT-INFIEWS:"
- Project Synopsis (up to 2500 text characters including required organizational statement): Provide a brief summary of the vision and goals of the proposed training program, including a brief description of the interdisciplinary research theme, the main training elements, the integration of the research and training, and the need for the program. Add the appropriate **required partner organization statement** at the end of the project synopsis. If the project has a partner institution that is not solely an evaluator, then the following text must appear at the end of the project synopsis: "*The participating institutions and organizations have agreed to partner on this NRT project. The NRT-eligible institutions have been informed by the lead organization that serving as a non-lead organization or subawardee on a proposal where the institution appears in the budget will count toward their institutional eligibility limit of two NRT proposals per annual competition.*" NRT-eligible institutions are universities and colleges accredited in and having a campus located in the U.S. that award a research-based master's degree and/or a doctoral degree in a STEM discipline supported by the National Science Foundation. If the project has no NRT-eligible partner institutions or if the only NRT-eligible institution solely has an evaluation role

(and has been designated as such, see participating institution instructions above), then the following text is required at the end of the project synopsis: "*There are no NRT-eligible institutions partnering on this project outside of an evaluation role.*"

- Target Disciplines: List up to 5 primary disciplinary areas contributing to the research focus.

**Section 2. Tentative Budget Summary:** Please provide itemized budget for the entire duration

**Section 3. Biographical Sketch of the PI (NSF Format)**

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### **Recent Research Grant and Contract Awards**

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

**PI:** Andrei Sirenko (PI)

**Department:** Physics

**Grant/Contract Project Title:** Material Synthesis and Spectroscopy Diffraction Studies of Multiferroics

**Funding Agency:** USDOE

**Duration:** 06/01/16-05/31/19

**PI:** Xinyue Ye (PI)

**Department:** Informatics

**Grant/Contract Project Title:** IBSS: Spatiotemporal Modeling of Human Dynamics Across Social Media and Social Networks

**Funding Agency:** NSF

**Duration:** 09/01/18-02/18/19

**PI:** Senjuti Basu Roy (PI) and Kurt Rohloff (Co-PI)

**Department:** Computer Sciences

**Grant/Contract Project Title:** Human-AI Symbiosis for Agile Planning

**Funding Agency:** ONR

**Duration:** 09/01/18-08/31/19

**PI:** Wen Zhang (PI)

**Department:** Civil and Environmental Engineering

**Grant/Contract Project Title:** Integrated Solar Seawater Splitting for Hydrogen Production via Photovoltaic-Electrolysis and Air Gap Membrane Desalination

**Funding Agency:** Katsujinken Foundation

**Duration:** 10/19/18-10/18/19

**PI:** Wen Zhang (PI) and Lucia Rodriguez-Freire (Co-PI)

**Department:** Civil and Environmental Engineering

**Grant/Contract Project Title:** Sustainable Recovery of Metals from Waste Lithium-Ion Batteries Through A Green Process

**Funding Agency:** EPA

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

**PI:** Mesut Sahin (PI)

**Department:** Biomedical Engineering

**Grant/Contract Project Title:** A Whole-Brain Ultrasonic Neural Stimulation and Photoacoustic Recording System in Behaving Animals

**Funding Agency:** NIH  
**Duration:** 09/01/18-08/31/19

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### **In the News...**

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

**Convergence, Inclusion, and Societal Impact:** These are the priorities spelled out in the long-awaited [Gen-4 Engineering Research Centers solicitation](#) from the National Science Foundation. The agency anticipates spending \$14 million in the current fiscal year on four awards, each lasting five years. Letters of intent are due November 30, 2018 and the full proposals are due July 12, 2019. Awardees would get \$3.5 million the first year, with the amount rising to \$6 million by years 3, 4, and 5. Gen-4 reflects recommendations in a [National Academies study](#) "as well as other sources," NSF says. [Click here](#) for an explanation of convergence. "[P]articipation from members of groups traditionally underrepresented in engineering as well as diverse scientific and other perspectives is required," the solicitation says. "ERCs enable society to be more resilient, productive, and safe. . . . [N]ew strategies, concepts, ideas and/or re-organizations may be needed to shore-up, extend, or strengthen society." Please see the Grant Opportunities section below for more information.

**Bridging the Gap: Building a Sustained Approach to Mid-scale Research Infrastructure and Cyberinfrastructure at NSF:** This report responds to U.S. House Appropriations Committee Fiscal Year (FY) 2018 Report language that directs the National Science Board (NSB), in collaboration with the National Academies of Science, Engineering, and Medicine (NASEM), to consider steps to bridge the gap between the NSF's Major Research Instrumentation Program (MRI) and the agency's Major Research Equipment and Facility Construction (MREFC) account and to develop appropriate processes to address this matter through the MREFC account within a restricted funding environment. The timing of this request from Congress is welcome, following NSF's October 2017 Request for Information (RFI) on existing and future needs for research infrastructure projects in the \$20 million-\$100 million-dollar range. It also comes at a time of increased NSF efforts to strategically prioritize mid-scale research infrastructure as one of the Agency's Big Ideas, as seen in NSF's 2019 Budget Request. The research community has identified mid-scale research infrastructure as a key enabler of scientific advances on shorter timescales than required for the larger projects funded within the MREFC account. Mid-scale research infrastructure can also provide the foundations for new innovative large facilities, and, in the process, train early-career researchers in the development, design, construction, and effective use of cutting-edge infrastructure. Likewise, cyberinfrastructure is key to solving the challenges of collecting, processing, and distributing the big data so prevalent in today's science and engineering endeavors. Infrastructure investments at the required mid-level can also help maintain the United States' standing among global partners and competitors. Full report is posted on the website <https://www.nsf.gov/nsb/publications/2018/NSB-2018-40-Midscale-Research-Infrastructure-Report-to-Congress-Oct2018.pdf>

**National Science Foundation Directorate for Engineering EMERGING FRONTIERS IN RESEARCH AND INNOVATION (EFRI):** The [EFRI Program](#) aims to focus the engineering community on important emerging areas in a timely manner. EFRI evaluates, recommends, and



funds interdisciplinary initiatives at the emerging frontiers of engineering research and innovation. These transformative opportunities may lead to: new research directions; new industries or capabilities that result in a leadership position for the country; and/or significant progress on a recognized national or societal need, or grand challenge. The EFRI Program is the signature activity of the [Office of Emerging Frontiers and Multidisciplinary Activities \(EFMA\)](#) in the Directorate for Engineering. EFRI invests in high-risk multidisciplinary opportunities with high-potential payoff. Its role is to support research areas that would not fit within the scope of an existing program. These frontier ideas cannot be pursued by one researcher or within one field of expertise. They are "frontier" because they not only push the limits of knowledge of one field, but are actually at the convergence of multiple fields. The EFRI funding process is designed to both inspire and enable a group of researchers with diverse technical expertise to work together on a single frontier idea.

The EFRI Program continuously gathers information for use in deciding future research topic areas to support. This rolling process ensures input and feedback from the engineering community on promising upcoming research opportunities. Input comes from diverse sources including workshops, advisory committees, proposals and awards, technical meetings, and professional societies, as well as from individual engineering researchers. From this comprehensive input, the EFRI team identifies, evaluates, and prioritizes those frontier topics that best match EFRI criteria.

Through this DCL, the NSF EFRI team is providing a direct opportunity for the research community to offer input on potential topic ideas for FY 2020, by inviting the community to submit emerging frontier Topic Idea suggestions for consideration. Submit Your Ideas at: <https://www.surveymonkey.com/r/efritopicideasFY2020>.

**HIGH RISK, HIGH POTENTIAL:** That's the kind of research funded as part of NSF's [Emerging Frontiers of Research and Innovation program](#). These ideas "cannot be pursued by one researcher or within one field of expertise. They are 'frontier' because they not only push the limits of knowledge of one field, but are actually at the convergence of multiple fields." Before sending out an FY 2020 EFRI solicitation, NSF is [conducting a survey](#) to gather topic ideas.

**BIG IDEAS 2.0:** Assuming that its Big Ideas theme has staying power, NSF is soliciting suggestions for the 2026 edition. They will be judged on their potential societal and scientific impacts, excitement, ambition and scope, originality, partnership potential, timeliness, whether they go beyond existing NSF programs, and quality of the presentation. Full report is posted on the website <https://files.asee.org/data/public/9fff0fdc5c567916.php>

**NEXT SOLAR DECATHLON:** Energy-efficient. Productive. Innovative. Creative. Resilient. Smart. These words describe more than the ideal building. They distinguish the students who have participated in the DOE premier building competitions—Solar Decathlon and Race to Zero—during the past several years. This year, DOE is excited to merge these two successful collegiate design competitions into one Solar Decathlon. This Solar Decathlon will offer collegiate teams a unique experience to develop critical career skills, learn from both national experts and peers, and gain valuable insights from world-class thought leaders. Specifically, student teams are challenged to design and, if part of the Solar Decathlon Build Challenge, build highly energy-efficient buildings powered by renewable energy. The winners will be those teams that best blend architectural and engineering excellence with innovation, market potential, building efficiency, and smart energy production.

Since 2002, this Department of Energy competition has "involved more than 150 collegiate teams (in) designing and building energy-efficient, solar-powered houses, (and) established a

worldwide reputation as a successful educational program and workforce development opportunity for thousands of students," DOE says. [See a competition guide](#) for the next decathlon, which spans 2019 and 2020 and lets teams participate in the Design Challenge or the Build Challenge. (In 2019, decathlons will take place in Hungary, Colombia, and Morocco.) More information is posted on the website <https://www.solardecathlon.gov/assets/pdfs/sd-competition-guide.pdf>

**White House Continues Public-Private Effort in Advanced Manufacturing** A [strategy document](#) acknowledges the need for a strong federal role in maintaining U.S. competitiveness. It notes that "private investments in manufacturing-based technologies have dramatically shrunk in recent years as investors focused on the rapid return on investments possible through software-based start-ups." Public investment in basic and early-stage applied research, together with public-private R&D partnerships, can help drive private-sector investment, it says. While U.S. production and employment have fallen sharply in communications and computer manufacturing, the nation still leads in testing, measuring and control instruments, aircraft and spacecraft, and pharmaceuticals. The document lays out three goals: Develop and transition new manufacturing technologies; educate, train, and connect the manufacturing workforce; and expand the capabilities of the domestic manufacturing supply chain. It says the Trump administration "has underscored the importance of STEM education to the development of the future American workforce." See [Businesses spent \\$375 billion on R&D performance in US in 2016, a 2017 Deloitte assessment of the Manufacturing USA institutes](#), and a 2017 [National Academies report](#) on Manufacturing USA..

**PHENOTYPIC Reengineering and Soft Robots:** The National Science Foundation's Engineering Directorate has picked two topics for funding under the \$30 million Emerging Frontiers in Research and Innovation (EFRI) program for 2019: Chromatin and Epigenetic Engineering (CEE), and Continuum, Compliant, and Configurable Soft Robotics Engineering (C3 SoRo). CEE seeks "new strategies for reversible regulation or engineering of the systems of gene expression to modulate the phenotype and function of a living organism." C3 SoRo asserts that soft robots "promise substantial advantages over traditional rigid robots in accomplishing open-ended tasks in an unstructured environment and in physical interfaces with biological organisms, including humans. Robots with a mix of mobility, strength, and configurability matching or exceeding what is found in the natural world would allow unprecedented extension of human perception and action to inaccessible and hostile environments." More information is included in the Grant Opportunity and posted on the website <https://www.nsf.gov/pubs/2019/nsf19502/nsf19502.pdf>

**DARPA SEEKS MORE SWARM 'SPRINTERS':** Having awarded contracts to eight institutions and companies as part of its second swarm sprint, the Defense Advanced Research Projects Agency [is soliciting proposals](#) for a third. This one "will focus on the topics of human-swarm teaming and swarm tactics." Second-round winners include researchers at Carnegie Mellon, Cornell, Michigan Tech, the University of Colorado-Boulder, and the University of North Carolina-Charlotte. See the [new solicitation](#). See also: [Teaching Machines Common Sense Reasoning](#), another step toward human-level AI. More information is posted on the website <https://www.darpa.mil/news-events/2018-10-11>

**Increase in Defense Basic Research and NIH Funding:** FY 2019 defense appropriation bill enacted last week provides \$94.8 billion for research, development, test, and evaluation (RDT&E), an increase of 7.5 percent for DOD. Of special interest to universities, is an increase of \$2.5 billion

for basic research across the Department, which would be an 8.0 percent increase. Additionally, the basic research accounts for all the Services and Defense-Wide would see increases. Of that amount, \$1.62 billion will go to Defense Research Sciences, with the Army getting the biggest increase. "Funding for basic research at DARPA is remaining essentially flat at \$423 million, following a 17 percent increase in fiscal year 2018." University Research Initiatives will get \$392 million (a 2 percent increase) to support multidisciplinary projects, research instrumentation, graduate fellowships, and presidential early-career awardees. University and Industry Research Centers will get \$114 million, Basic Research Initiatives \$57 million (up 40 percent), and the National Defense Education Program \$136 million (up 32 percent). However, funding for Historically Black Colleges and Universities and other minority-serving institutions "is leveling out at \$40 million." The Pentagon spending measure was part of an appropriations package signed by President Trump that also included Labor, Health and Human Services, and Education departments.

The bill would provide a fourth consecutive increase of at least \$2 billion for NIH, bringing the agency's total funding to \$39.1 billion. The total includes \$711 million for specific initiatives in the NIH Innovation Account authorized in the 21st Century Cures Act. The conference agreement would retain the salary cap at Executive Level II (\$189,600), rejecting the President's FY 2019 budget request proposal to decrease it to Level V (\$153,800).

For most targeted research activities, the agreement adheres to the Senate-passed levels, including \$2.3 billion for Alzheimer's research, \$550 million for combating antibiotic resistance research, and \$560 million for the Clinical and Translational Science Awards (CTSAs). For research on a universal flu vaccine, the agreement includes a \$40 million increase bringing the total to \$140 million for FY 2019, which is \$20 million more than the Senate proposed. The agreement also would provide \$361.6 million for the Institutional Development Award (IDeA) Program, which would be an \$11 million increase above FY 2018 and aligns with the Senate-passed level.

It also would provide funding increases for programs supported through the NIH Innovation Account, authorized by the 21st Century Cures Act. Per the Cures Act, \$400 million is directed to the National Cancer Institute (NCI) for the Cancer Moonshot; \$57.5 million is directed to the National Institute of Neurological Disorders and Stroke (NINDS) and another \$57.5 million to the National Institute on Mental Health for the BRAIN Initiative; \$196 million for the Precision Medicine Initiative All of Us cohort study; and \$10 million for regenerative medicine.

More information is posted on [http://www.lewis-burke.com/sites/default/files/conference\\_committee\\_releases\\_fy\\_2019\\_defense\\_l-hhs-ed\\_agreement.pdf](http://www.lewis-burke.com/sites/default/files/conference_committee_releases_fy_2019_defense_l-hhs-ed_agreement.pdf)

**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](#)

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### Webinar and Events

**Event: Supersizing Superresolution Microscopy: Open-Source Approaches to Accelerate Your Microscopy Research**

**Sponsor: Science Webinar Series**

**When: October 24, 2018; 12.00 PM – 1.00 PM**

**Website: [webinar.sciencemag.org](http://webinar.sciencemag.org)**

**Brief Description:** Three high-performance, open-source approaches—NanoJ-SRRF, NanoJ-SQUIRREL, and NanoJ-Fluidics—have recently been developed to enable and enhance optical superresolution microscopy in most modern microscopes. NanoJ-superresolution radical fluctuations (SRRF) is a new superresolution method enabling live-cell nanoscopy with illumination intensities orders of magnitude lower than techniques such as single-molecule localization microscopy (SMLM) or stimulated emission depletion (STED) microscopy can deliver. SRRF’s low phototoxicity allows unprecedented imaging for long acquisition times at resolutions equivalent to or better than those possible with structured illumination microscopy (SIM). NanoJ-SQUIRREL (superresolution quantitative image rating and reporting of error locations), an analytical approach that provides quantitative assessment of superresolution image quality, can guide researchers in optimizing imaging parameters. By comparing diffraction-limited images and superresolution equivalents of the same acquisition volume, this method generates a quality score and quantitative map of superresolution defects. NanoJ-Fluidics is a novel fluidics technique for automating complex sequences of treatment, labeling, and imaging of live and fixed cells with high reproducibility. During the webinar, the speakers will:

- Showcase how SRRF benefits from spinning-disk acquisition and performs with EM-CCDs and sCMOS cameras
- Demonstrate how NanoJ-Fluidics can be used to examine actin dynamics, nanoscale cell topography, and the role of adhesion contacts in mitosis
- Answer your questions during the live broadcast!

**Register at: [webinar.sciencemag.org](http://webinar.sciencemag.org)**

**Event: The 3Rs: Considerations for Contracted Research**

**Sponsor: New Jersey Association for Biomedical Research**

**When: October 24, 2018; 11.00 AM – 12.00 PM**

**Website:**

<http://events.r20.constantcontact.com/register/event?oeidk=a07efp87s4c02339417&llr=nujebhdab>

**Brief Description:** NJABR is pleased to partner with the 3Rs Leadership Group of the International Consortium for Innovation & Quality in Pharmaceutical Development ("IQ") and the North American 3Rs Collaborative ("NA3RsC") in developing and hosting an expanded webinar series for 2018 and 2019. Additional webinars and related collaborative coffee chats hosted by the IQ and NA3RsC will be added to the schedule. Registrants will be able to participate in all events hosted by NJABR, IQ, or NA3RsC. The series will include no less than five NJABR hosted webinars, plus additional IQ and NA3RsC hosted events. Details about the additional events will be released as soon as they are scheduled.

**To Register:**

<http://events.r20.constantcontact.com/register/event?oeidk=a07efp87s4c02339417&llr=nujebhdab>

**Event: NSF Funding for Quantum Technologies**

**Sponsor: NSF**

**When: October 25, 2018; 3.00 PM – 4.30 PM**

**Website:** [https://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=296901&org=NSF](https://www.nsf.gov/events/event_summ.jsp?cntn_id=296901&org=NSF)

**Brief Description:** The National Science Foundation unveiled a set of "[Big Ideas](#)" — 10 bold, long-term research and process ideas that identify areas for future investment at the frontiers of science and engineering. One of the Big Ideas is the Quantum Leap: Leading the Next Quantum Revolution. Quantum Leap will exploit quantum mechanics to observe, manipulate, and control the behavior of particles and energy at atomic and subatomic scales, resulting in next-generation technologies for sensing, computing, modeling, and communicating. Program Director Peter Atherton will discuss [America's Seed Fund powered by NSF](#) (the Small Business Innovation Research/Small Business Technology Transfer programs — SBIR/STTR), the [Partnerships for Innovation program](#) (PFI) and other opportunities to translate quantum research into new technology.

**To Register:** [Register for the Quantum Webinar on WebEx.](#)

**Event: NSF SBIR/STTR Webinar Series**

**Sponsor: NSF**

**When: October 30, 2018; 2.00 PM – 4.00 PM**

**Website:** [https://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=296843&org=NSF](https://www.nsf.gov/events/event_summ.jsp?cntn_id=296843&org=NSF)

**Brief Description:** [America's Seed Fund powered by the National Science Foundation \(NSF\)](#) awards \$200 million annually to startups and small businesses, transforming scientific discovery into products and services with commercial and societal impact. Startups working across almost all areas of science and technology can receive up to \$1.5 million in non-dilutive funds to support research and development (R&D), helping de-risk technology for commercial success. America's Seed Fund is Congressionally mandated through the Small Business Innovation Research (SBIR) program. Join this webinar to learn more about the program and how to apply. The next Phase I proposal deadline is December 4, 2018.

**To Register:** [Register on WebEx for the October 30 webinar.](#)

**Event: Tech Insider Webinar: Time-domain Simulation of Electro-mechanical Sensors and Systems**

**Sponsor: IEEE**

**When: On Demand**

**Website:**

<https://event.on24.com/eventRegistration/EventLobbyServlet?target=reg20.jsp&referrer=&eventid=181>



[6081&sessionid=1&key=0E2FCA3E4B3C31F4605877D58B0F8A47&regTag=&sourcepage=register&referrer=IEEE](http://6081&sessionid=1&key=0E2FCA3E4B3C31F4605877D58B0F8A47&regTag=&sourcepage=register&referrer=IEEE)

**Brief Description:** If you are interested in modeling a variety of electromechanical sensors, then tune into this webinar to learn how OnScale helps Fortune100 companies optimize their most demanding designs using powerful FEM seamlessly integrated with Cloud HPC directly with on-demand, scalable Cloud HPC. Understanding the complex, highly coupled behavior of electromechanical sensors (e.g. MUTs, piezoelectric transducer arrays, BAWs and SAWs) and their performance in a system as a whole is critical in the development of innovative technologies (e.g. Ultrasonic Fingerprint Sensors, Medical Imaging, and RF Filters).

Due to the anisotropic materials, complex modal coupling, and multiphysics involved in a single design (piezoelectric, electrostatic, structural, thermal and acoustic), powerful numerical simulation is essential for predicting and understanding effects of design changes, environmental influences, and manufacturing tolerances. By facilitating rapid design iteration and assessment, cloud based simulation tools can explore large design spaces that would be impossible to do via physical prototypes.

In this webinar, OnScale will explore and analyze some of the common pain-problems in the sensor space, and present pragmatic examples to show how rapid FEM & Cloud HPC can dramatically accelerate product design cycles, reducing time, cost and risk.

**To Register:** Register at the above URL

### **Event: Math Frontiers Monthly Webinar Series: Why Machine Learning Works**

**Sponsor: National Academies**

**When: November 13, 2018 from 2.00 PM**

**Website:** [http://sites.nationalacademies.org/deps/bmsa/deps\\_183972](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](http://nas.edu/mathfrontiers).

**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](http://sites.nationalacademies.org/deps/bmsa/deps_183972)

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## **Grant Opportunities**

### **National Science Foundation**

**Grant Program: Algorithms for Threat Detection (ATD)**

**Agency: National Science Foundation NSF 19-504**

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19504/nsf19504.htm>

**Brief Description:** The Algorithms for Threat Detection (ATD) program will support research projects to develop the next generation of mathematical and statistical algorithms for analysis of large

spatiotemporal datasets with application to quantitative models of human dynamics. The program is a partnership between the Division of Mathematical Sciences (DMS) at the National Science Foundation (NSF) and the National Geospatial Intelligence Agency (NGA). The ATD program will support research projects that aim to develop novel mathematical and statistical algorithms for analysis of large geospatial datasets. Means to quantify confidence levels are desired, as are insights into new spatiotemporal datasets and valuable means of assembling them. Models may range from those that address activities of individuals to those applicable to small groups or entire nations. These models may leverage mathematical research areas including, but not limited to, point processes, time series, dynamical systems, partial differential equations, and optimal control. Models that depend almost entirely on the spatial and temporal aspects of the data are of greatest interest. General applications of interest include threat detection, predictive analytics, human mobility, and human geography.

**Awards:** Standard Grants. Anticipated Funding: \$3,000,000

**Letter of Intent:** Not Required

**Proposal Submission Deadline:** February 19, 2019

**Contacts:** Leland M. Jameson, Program Director, NSF MPS/DMS, NSF, telephone: (703) 292-4883, email: [ljameson@nsf.gov](mailto:ljameson@nsf.gov)

- John Greer, Program Director, National Geospatial Intelligence Agency, NGA, telephone: (571) 557-2944, email: [John.B.Greer@nga.mil](mailto:John.B.Greer@nga.mil)

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## **Grant Program: Gen-4 Engineering Research Centers (ERC): Convergent Research and Innovation through Inclusive Partnerships and Workforce Development**

**Agency: National Science Foundation NSF 19-503**

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19503/nsf19503.htm>

**Brief Description:** The ERC program supports convergent research that will lead to strong societal impact. Each ERC has interacting foundational components that go beyond the research project, including engineering workforce development at all participant stages, a culture of diversity and inclusion where all participants gain mutual benefit, and value creation within an innovation ecosystem that will outlast the lifetime of the ERC. The logical reasoning that links the proposed activities to the identified goals for each ERC should be clear.

- **The ERC program has placed greater emphasis on convergence.** Convergent research approaches require the deep integration of knowledge, tools, and ways of thinking beyond engineering (for example, from the physical, mathematical, life/health sciences, computational sciences, and social sciences, among others). Purposeful **team formation** is needed for the convergent approach, supported by diversity and a **culture of inclusion** where all participants are recognized and derive mutual benefits. The convergent approach supports the strong societal impact expected of each ERC.
- **The ERC program has been re-envisioned to emphasize positive societal impact.** ERCs will strive to enable society to have a better quality of life, and be more resilient, productive, and/or safe.
- **The ERC program has strengthened the requirement for demonstrable integration of foundational components.** A strong strategic plan for each ERC outlines the interplay between the four foundational components of the ERC, including the convergent research project, engineering workforce development, the development of a culture of diversity and inclusion, and a focus on value creation within the innovation ecosystem. All these foundational components should together support the ultimate impact on society.
- **The ERC program calls for societal value creation:** Value Creation has often been defined in relation to the business environment, commonly referring to the increase in revenue from products and services or growth in company worth (e.g., stock price). In the context of this solicitation, it

is defined as the creation of societal value from innovations (e.g., inventions, goods, services, businesses) that benefit society in a sustainable fashion.

- **The ERC program and this solicitation provide opportunities for effective leadership, management and infrastructure approaches.** Teams are encouraged to be strategic and creative.
- **The ERC program has updated the PI requirements to support the focus on convergence.**
- **The review criteria have been updated to reflect the new ERC emphases.**

**Awards:** 4 Awards. Anticipated Funding: \$14,000,000. \$14,000,000 to support the first year for up to four newly funded ERCs, depending on availability of funds in FY 2020. ERCs generally operate for ten years, with an initial award for the first five years and second award based on performance and review of a renewal proposal.

NSF expects to make the ERC awards in the summer of 2020. The initial ERC award would be for five years. The maximum annual budget allowed is shown in the table below.

Year	Allowable Maximum Budget
1	\$3,500,000
2	\$4,500,000
3	\$6,000,000
4	\$6,000,000
5	\$6,000,000

Year 1 budget will be committed upon award, and subsequent year budgets are subject to satisfactory annual review of accomplishments and availability of funds. After a gradual ramp up, years three through five are projected to level off at \$6,000,000 in each of those years. Pending performance and outcome of a renewal review in the fourth year, support for years six to eight will continue at \$6,000,000 per year. Support for years nine and ten will be phased down, with \$4,000,000 in year 9 and \$2,600,000 in year 10.

**Letter of Intent:** November 30, 2018

**Preliminary Proposal Submission Deadline:** January 16, 2019

**Final Proposal Submission Deadline** July 12, 2019

**Contacts:** Junhong Chen, telephone: (703) 292-4623, email: [junchen@nsf.gov](mailto:junchen@nsf.gov)

- Dana L. Denick, telephone: (703) 292-8866, email: [ddenick@nsf.gov](mailto:ddenick@nsf.gov)
- Deborah J. Jackson, telephone: (703) 292-7499, email: [djackson@nsf.gov](mailto:djackson@nsf.gov)
- Eduardo A. Misawa, telephone: (703) 292-5353, email: [emisawa@nsf.gov](mailto:emisawa@nsf.gov)

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**Grant Program: Emerging Frontiers in Research and Innovation 2019 (EFRI-2019)**

**Chromatin and Epigenetic Engineering (CEE) and Continuum, Compliant, and Configurable Soft Robotics Engineering (C3 SoRo)**

**Agency: National Science Foundation NSF 19-502**

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19502/nsf19502.htm>

**Brief Description:** The Emerging Frontiers in Research and Innovation (EFRI) program of the NSF Directorate for Engineering (ENG) serves a critical role in helping ENG focus on important emerging areas in a timely manner. This solicitation is a funding opportunity for interdisciplinary teams of researchers to embark on rapidly advancing frontiers of fundamental engineering research. For this solicitation, we will consider proposals that aim to investigate emerging frontiers in one of the following two research areas:

- **Chromatin and Epigenetic Engineering (CEE)**
- **Continuum, Compliant, and Configurable Soft Robotics Engineering (C3 SoRo)**

This solicitation will be coordinated with the Directorate for Biological Sciences (BIO) and the Directorate for Computer and Information Science and Engineering (CISE).

EFRI seeks proposals with transformative ideas that represent an opportunity for a significant shift in fundamental engineering knowledge with a strong potential for long term impact on national needs or a grand challenge. The proposals must also meet the detailed requirements delineated in this solicitation.

**FURTHER INFORMATION:** Further information about the EFRI program may be obtained by viewing the slides from the FY18 EFRI informational webinar. Please click [here](#) to view the FY18 slides.

**Awards:** Standard Grants. Anticipated Funding: \$30,000,000

**Letter of Intent:** November 29, 2018

**Preliminary Proposal Submission Deadline:** January 07, 2019

**Full Proposal Submission Deadline:** April 25, 2019

**Contacts:** Sohi Rastegar, Director, ENG/EFMA, telephone: (703) 292-8305, email: [srastega@nsf.gov](mailto:srastega@nsf.gov)

- Garie A. Fordyce, Program Manager, ENG/EFMA, telephone: (703) 937-7917, email: [gfordyce@nsf.gov](mailto:gfordyce@nsf.gov)
- TOPIC 1, Chromatin and Epigenetic Engineering (CEE) - Program Coordinator, telephone: (703) 292-7942, email: [lesterow@nsf.gov](mailto:lesterow@nsf.gov)
- Leon Esterowitz, Program Director, ENG/CBET, telephone: (703) 292-7942, email: [lesterow@nsf.gov](mailto:lesterow@nsf.gov)

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### **Grant Program: Accelerating Research through International Network-to-Network Collaborations (AccelNet)**

**Agency:** National Science Foundation NSF 19-501

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19501/nsf19501.htm>

**Brief Description:** The goals of the Accelerating Research through International Network-to-Network Collaborations (AccelNet) program are to accelerate the process of scientific discovery and prepare the next generation of U.S. researchers for multiteam international collaborations. The AccelNet program supports strategic linkages among U.S. research networks and complementary networks abroad that will leverage research and educational resources to tackle grand scientific challenges that require significant coordinated international efforts. The program seeks to foster high-impact science and engineering by providing opportunities to create new collaborations and new combinations of resources and ideas among linked global networks.

This solicitation invites proposals for the creation of international networks of networks in research areas aligned either with one of the NSF Big Ideas or a community-identified scientific challenge with international dimensions. AccelNet awards are meant to support the connections among research networks, rather than supporting fundamental research as the primary activity. Each network of networks is expected to engage in innovative collaborative activities that promote synergy of efforts across the networks and provide professional development for students, postdoctoral scholars, and early-career researchers. There are two proposal categories covered by this solicitation: Catalytic and Full-Scale Implementation.

**Awards:** Standard Grants. Anticipated Funding: \$6,000,000

**Letter of Intent:** December 21, 2018

**Proposal Submission Deadline:** February 28, 2019

**Contacts:** Claire A. Hemingway, telephone: (703) 292-7135, email: [chemingw@nsf.gov](mailto:chemingw@nsf.gov)

- Fahmida Chowdhury, telephone: (703) 292-4672, email: [fchowdhu@nsf.gov](mailto:fchowdhu@nsf.gov)

**Grant Program: Joint DMS/NLM Initiative on Generalizable Data Science Methods for Biomedical Research (DMS/NLM)**

**Agency: National Science Foundation NSF 19-500**

**RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19500/nsf19500.htm>

**Brief Description:** The Division of Mathematical Sciences (DMS) in the Directorate for Mathematical and Physical Sciences (MPS) at the National Science Foundation (NSF) and the National Library of Medicine (NLM) at the National Institutes of Health (NIH) plan to support the development of innovative and transformative mathematical and statistical approaches to address important data-driven biomedical and health challenges. The rationale for this interagency collaboration is that significant advances may be expected as the result of continued NSF investments in foundational research in mathematics and statistics as well as inter- and multi-disciplinary research and training at the intersection of the quantitative/computational sciences and domain sciences, while NIH benefits from the enhancement of biomedical data science with new approaches that strengthen the reproducibility of biomedical research and support open science.

**Awards:** Standard Grants. Anticipated Funding: \$4,000,000

**Letter of Intent:** Not Required

**Proposal Submission Deadline:** January 02, 2019 - January 16, 2019

**Contacts:** Nandini Kannan, Program Officer, NSF/DMS, telephone: (703) 292-8104, email: [nakannan@nsf.gov](mailto:nakannan@nsf.gov)

- James Powell, Program Officer, NSF/DMS, telephone: (703) 292-8714, email: [jpowell@nsf.gov](mailto:jpowell@nsf.gov)
- Jane Ye, Program Officer, NIH/NLM, telephone: (301) 594-4882, email: [yej@mail.nlm.nih.gov](mailto:yej@mail.nlm.nih.gov)

**Grant Program: Enabling Early-Stage Secure and Trustworthy Cyberspace (SaTC) Socio-Technical Interdisciplinary Collaborations**

**Agency: National Science Foundation NSF 18-600**

**RFP Website:** <https://www.nsf.gov/pubs/2018/nsf18600/nsf18600.htm>

**Brief Description:** The National Science Foundation's (NSF) Secure and Trustworthy Cyberspace (SaTC) program aims to promote research on the fundamentals of security and privacy as a multidisciplinary subject that will lead to new ways to design, build, and operate cyber systems, protect existing infrastructure, and motivate and educate individuals about cybersecurity. With this DCL, NSF is announcing its intention to encourage the submission of EARly-Concept Grants for Exploratory Research (EAGER) proposals that foster excellent interdisciplinary research in the SaTC domain to be carried out in early-stage collaborations between one or more Computer and Information Science and Engineering (CISE) researchers and one or more Social, Behavioral, and Economic Sciences (SBE) researchers. Note that this DCL is focused on collaborations of principal investigators (PIs) who have not previously jointly received a SaTC award.

Many scientific and practical challenges of security, privacy, and trust have sociotechnical dimensions, making it important to encourage interdisciplinary collaborations among researchers from the disciplines represented in NSF's CISE and SBE directorates on topics that draw on the strengths of each researcher. Some of these topics are suggested in the most recent SaTC program solicitation ([NSF 18-572](#)), but other topics relevant to the SaTC program are also welcome.

**Awards:** Standard Grants. NSF anticipates funding up to 10 EAGER awards pursuant to this DCL, subject to the availability of funds and quality of proposals received.

**Letter of Intent:** Not Required

**Proposal Submission Deadline:** December 12, 2018

**Contacts:** Sara Kiesler ([skiesler@nsf.gov](mailto:skiesler@nsf.gov))

Dan Cosley ([dcosley@nsf.gov](mailto:dcosley@nsf.gov))

Susanne Wetzel ([swetzel@nsf.gov](mailto:swetzel@nsf.gov))



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**Grant Program: Understanding the Rules of Life: Epigenetics****Agency: National Science Foundation NSF 18-600****RFP Website:** <https://www.nsf.gov/pubs/2018/nsf18600/nsf18600.htm>

**Brief Description:** *Understanding the Rules of Life (URoL): Predicting Phenotype* is one of NSF's 10 Big Ideas and is focused on predicting the set of observable characteristics (phenotype) from the genetic makeup of the individual and the nature of its environment. The development of new research tools has revolutionized our ability to manipulate and investigate the genome and to measure multiple aspects of biological, physical, and social environments. The opportunity now is to assimilate this new information into causal, mechanistic, and/or predictive relationships between the genomic and epigenetic makeup, the environmental experience, and the phenotypic characteristics of biological systems. These relationships are the basis for the Rules of Life – the theoretical constructs that explain and predict the characteristics of living systems, from molecular and sub-cellular components, to cells, whole organisms, communities and biomes.

The recognition that heritable phenotypic properties can occur without modification of an organism's genome sequence is changing the understanding of the way heritable traits come about and manifest themselves as observable phenotypes within a particular static or changing environmental context. The impact of epigenetic inheritance occurs at the molecular, cellular, and organismal scales, and may have profound consequences for the higher-order organization of living systems, such as populations, communities, and ecosystems.

Successful projects of the URoL:Epigenetics Program are anticipated to use complementary, interdisciplinary approaches to investigate how epigenetic phenomena lead to emergent properties that explain the fundamental behavior of living systems. Ultimately, successful projects should identify general principles ("rules") that underlie a wide spectrum of biological phenomena across size, complexity (e.g., molecular, cellular, organismal, population) and temporal scales (from sub-second to geologic) in taxa from anywhere within the tree of life. **URoL:Epigenetics projects must integrate perspectives and research approaches from more than one research discipline (e.g., biology, chemistry, computer science, engineering, geology, mathematics, physics, social and behavioral sciences).** The interdisciplinary scope of URoL:Epigenetics projects also provides unique training and outreach possibilities to train the next generation of scientists in a diversity of approaches and to engage society more generally.

The URoL:Epigenetics Program offers two submission tracks: Track 1 - for projects with a total budget of up to \$500,000 and an award duration of up to 3 years, and Track 2 - for projects with a total budget of up to \$3,000,000 and award duration of up to 5 years.

**Awards:** Standard Grant; Available Funds; \$18,000,000**Letter of Intent:** Not Required**Proposal Submission Deadline:** February 01, 2019**Contacts:** Mitra Basu, telephone: 703-292-8649, email: [epigen@nsf.gov](mailto:epigen@nsf.gov)

- Rebecca Ferrell, telephone: 703-292-7850, email: [epigen@nsf.gov](mailto:epigen@nsf.gov)
- Louise R. Howe, telephone: 703-292-2548, email: [epigen@nsf.gov](mailto:epigen@nsf.gov)

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**Grant Program: Understanding the Rules of Life: Building a Synthetic Cell: An Ideas Lab Activity****Agency: National Science Foundation NSF 18-599****RFP Website:** <https://www.nsf.gov/pubs/2018/nsf18599/nsf18599.htm>

**Brief Description:** This solicitation describes an Ideas Lab on “Building a Synthetic Cell.” Ideas Labs are intensive workshops focused on finding innovative solutions to grand challenge problems. The ultimate aim of this Ideas Lab organized by the National Science Foundation is to facilitate the generation

and execution of innovative research projects aimed at designing, fabricating, and validating synthetic cells that express specified phenotypes. The aspiration is that mixing researchers who have diverse scientific backgrounds will engender original thinking and innovative approaches that will transform our understanding of cellular processes, the molecular mechanisms that underscore the building and function of systems that reproduce life traits, the self-assembly of life-like systems, soft condensed matter, and the physics and chemistry of life that are needed to design and build cellular components, cells and multicell systems.

The ability to design and manufacture synthetic cells has significant implications for the scientific and economic enterprise of the United States. The synthesis of viable cells from non-living molecules and materials can open the door to the production of functional biomaterials and improved biofuels, large scale chemical synthesis, non-silicon-based computing, novel soil engineering, and medical and pharmaceutical advances, to name just a few possibilities. The study of synthetic cells, and of the processes used in their creation, can also provide a window on the origin and evolution of life on Earth and, potentially, provide insight into extraterrestrial life.

Synthetic cells have a number of shared characteristics. They may possess many of the structures of biological cells and reproduce capabilities such as self-replication, metabolism and response to environmental cues. However, they may be engineered using novel molecules and materials and structures to mimic single or complex biological functions. There are many reasons to engage in synthetic cell research; for example, to better understand what constitutes a living system, to identify the truly essential functions of cells, and building in itself can be a way to demonstrate understanding. Synthetic cell research employs a wide range of approaches including ‘top down’ methodologies exemplified by efforts to construct a ‘minimal cell’ by gradually deleting genes and components until a system with the fewest components that still exhibits the hallmarks of life is obtained. The alternative ‘bottom up’ approaches involve assembling molecular building blocks until cellular functions are obtained. These approaches might meet in the middle, and may inform each other.

The design and production of synthetic cells requires the development of innovative and integrative experimental approaches in combination with novel theoretical frameworks, improved mathematical models, new artificial biomaterials, predictive understanding of biological function, and the identification of causal relationships in biological systems (e.g. genotype/phenotype, structure/function), all within an ethical framework that is sensitive to the profound implications of the research being conducted. Building a synthetic cell is a grand challenge at the interface between biological, mathematical, computer and physical sciences and engineering that has the potential to advance not only applications, but also our fundamental understanding of how cells self-assemble and function and of emergent order in non-equilibrium systems. Meeting this challenge requires simultaneous careful exploration of the social and ethical dimensions of such research as well as educating today's students to engage in the activities and technologies required both for developing synthetic cells and for their use in biology, engineering, chemistry, pharmaceutical development, and other activities. Only by doing so will we be able to fully understand both the societal benefits and risks as well as their potential for willful misuse or unintended damage to natural biological systems. In concert with technology development, educating students and the lay public will also be important to ensure an accurate understanding of the scientific advances resulting from the development and use of synthetic cells.

This Ideas Lab advances the objectives of one of [10 Big Ideas for Future NSF Investments](#): ‘Understanding the Rules of Life: Predicting Phenotype’. The 10 Big Ideas will push forward the frontiers of U.S. research and provide innovative approaches to solve some of the most pressing problems the world faces, as well as lead to discoveries not yet known. This multi-directorate program is one element of NSF's multi-year effort towards the goals of the Understanding the Rules of Life Big Idea ([https://www.nsf.gov/news/special\\_reports/big\\_ideas/life.jsp](https://www.nsf.gov/news/special_reports/big_ideas/life.jsp)). US researchers may submit preliminary proposals only *via* FastLane for participation in the Ideas Lab in which a set of multidisciplinary ideas

will be developed. These multidisciplinary ideas will form the basis of the full proposals to be written based on the discussion within the Ideas Lab.

**Awards:** Standard Grant; Available Funds; \$10,000,000

**Letter of Intent:** Not Required

**Preliminary Proposal Due Date(s) (required):** December 28, 2018

**Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):** May 13, 2019

**Proposal Submission Deadline:** December 18, 2018

**Contacts:** Charles Cunningham, telephone: (703) 292-2283, email: [chacunni@nsf.gov](mailto:chacunni@nsf.gov)

- Mitra Basu, telephone: (703) 292-8649, email: [mbasu@nsf.gov](mailto:mbasu@nsf.gov)

- Krastan B. Blagoev, telephone: (703) 292-4666, email: [kblagoev@nsf.gov](mailto:kblagoev@nsf.gov)

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## **Grant Program: Big Data Regional Innovation Hubs (BD Hubs) Accelerating the Big Data Innovation Ecosystem**

**Agency:** National Science Foundation NSF 18-598

**RFP Website:** <https://www.nsf.gov/pubs/2018/nsf18598/nsf18598.htm>

**Brief Description:** NSF's Directorate for Computer and Information Science and Engineering (CISE) initiated the National Network of Big Data Regional Innovation Hubs (BD Hubs) program in FY 2015 ([NSF 15-562](#)). Four Big Data Hubs (BD Hubs)—*Midwest, Northeast, South, and West*—were established, one in each of the four Census Regions of the United States<sup>[1]</sup>. The BD Hubs provide the ability to engage local or regional stakeholders, e.g., city, county, and state governments, local industry and non-profits, and regional academic institutions, in big data research, and permit a focus on regional issues. These collaborative activities and partnerships play a critical role in building and sustaining a successful national big data innovation ecosystem.

This solicitation continues the operation of a national network of BD Hubs. It builds on demonstrated strengths of the program, which has grown to include a set of BD Spokes affiliated with the BD Hubs, and is responsive to the recent developments in data science. For instance, the recently released report on [Data Science for Undergraduates: Opportunities and Options](#) from the National Academies of Sciences, Engineering, and Medicine exemplifies the urgency of multi-faceted education and training in data science. The BD Hubs will continue to nucleate regional collaborations and multi-sector projects, while fostering innovation in data science.

The NSF BD Hubs program is aligned with NSF's [Harnessing the Data Revolution](#) (HDR) Big Idea, one of [NSF's 10 Big Ideas for Future Investment](#). HDR is a visionary, national-scale activity to enable new modes of data-driven discovery, allowing fundamentally new questions to be asked and answered in science and engineering frontiers, generating new knowledge and understanding, and accelerating discovery and innovation. The HDR vision is realized via a coordinated set of program solicitations resulting in an ecosystem of interrelated activities enabling (i) research in the foundations of data science; frameworks, algorithms, and systems for data science; and data-driven research in science and engineering; (ii) advanced cyberinfrastructure; and (iii) education and workforce development—all of which are designed to amplify the intrinsically multidisciplinary nature of the data science challenge. The HDR Big Idea will establish theoretical, technical, and ethical data science frameworks, and apply them to practical problems in science and engineering, and in society more generally.

**Awards:** Up to \$4,000,000; Available Funds; \$16,000,000

**Letter of Intent:** Not Required

**Limit on Number of Proposals per Organization:** 1: An organization may only submit one proposal.

**Limit on Number of Proposals per PI or Co-PI:** 1

**Internal Competition:** NJIT faculty should send SVPR Atam Dhawan a pre-proposal with the following sections for internal review by October 15, 2018. The selection of the proposal for institutional submission will be announced by October 22, 2018. The pre-proposal should include:

- i. A cover sheet with names and affiliation of all investigators
- ii. Summary of the project with Intellectual Merit and Broader Impact sections
- iii. Proposed budget
- iv. NSF format biographical sketch for PI and all Co-PIs.

**Full Proposal Submission Deadline:** December 18, 2018

**Contacts:** Beth A. Plale, Science Advisor, CISE/OAC, National Science Foundation, E10475, telephone: (703) 292-7004, email: [BDHubQueries@nsf.gov](mailto:BDHubQueries@nsf.gov)

Alejandro M. Suarez, Assistant Program Director, CISE/OAC, National Science Foundation, E10457, telephone: (703) 292-7092, email: [BDHubQueries@nsf.gov](mailto:BDHubQueries@nsf.gov)

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### **Grant Program: Formal Methods in the Field (FMitF)**

**Agency: National Science Foundation NSF 18-596**

**RFP Website:** <https://www.nsf.gov/pubs/2018/nsf18596/nsf18596.htm>

**Brief Description:** The Formal Methods in the Field (FMitF) program aims to bring together researchers in formal methods with researchers in other areas of computer and information science and engineering to jointly develop rigorous and reproducible methodologies for designing and implementing correct-by-construction systems and applications with provable guarantees. FMitF encourages close collaboration between two groups of researchers. The first group consists of researchers in the area of formal methods, which, for the purposes of this solicitation, is broadly defined as principled approaches based on mathematics and logic, including modeling, specification, design, program analysis, verification, synthesis, and programming language-based approaches. The second group consists of researchers in the “field,” which, for the purposes of this solicitation, is defined as a subset of areas within computer and information science and engineering that currently do not benefit from having established communities already developing and applying formal methods in their research. This solicitation limits the field to the following areas that stand to directly benefit from a grounding in formal methods: computer networks, cyber-human systems, distributed /operating systems, hybrid/dynamical systems, and machine learning. The FMitF program solicits two classes of proposals:

- **Track I: Research proposals:** Each proposal must have at least one Principal Investigator (PI) or co-PI with expertise in formal methods and at least one with expertise in one or more of these fields: computer networks, cyber-human systems, distributed/operating systems, hybrid/dynamical systems, and machine learning. Proposals are expected to address the fundamental contributions to both formal methods and the respective field(s) and should include a proof of concept in the field along with a detailed evaluation plan that discusses intended scope of applicability, trade-offs, and limitations. All proposals are expected to contain a detailed collaboration plan that clearly highlights and justifies the complementary expertise of the PIs/co-PIs in the designated areas and describes the mechanisms for continuous bi-directional interaction. Projects are limited to \$750,000 in total budget, with durations of up to four years.
- **Track II: Transition to Practice (TTP) proposals:** The objective of this track is to support the ongoing development of extensible and robust formal methods research prototypes/tools to facilitate usability and accessibility to a larger and more diverse community of users. These proposals are expected to support the development, implementation, and deployment of later-stage successful formal methods research and tools into operational environments in order to bridge the gap between research and practice. A TTP proposal must include a project plan that addresses major tasks and system development milestones as well as an evaluation plan for the working system. Proposals are expected to identify a target user community or organization that will serve

as an early adopter of the technology. Collaborations with industry are strongly encouraged. Projects are limited to \$100,000 in total budget, with durations of up to 18 months.

The Project Description can be **up to 15 pages for Track I proposals**, and **up to 7 pages for the Track II proposals**.

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

**Letter of Intent:** Not Required

**Full Proposal Submission Deadline:** January 15, 2019

**Contacts:** Nina Amla, Program Director, CISE/CCF, telephone: (703) 292-7991, email: [namla@nsf.gov](mailto:namla@nsf.gov)

- Anindya Banerjee, Program Director, CISE/CCF, telephone: (703) 292-7885, email: [abanerje@nsf.gov](mailto:abanerje@nsf.gov)
- Vipin Chaudhary, Program Director, CISE/OAC, telephone: (703) 292-2254, email: [vipchaud@nsf.gov](mailto:vipchaud@nsf.gov)

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### **Grant Program: Cyberinfrastructure for Biological Research (CIBR)**

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

**RFP Website:**

[https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505538&org=NSF&sel\\_org=NSF&from=fund](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. 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.

**Awards:** Standard Grants

**Letter of Intent:** Not Required

**Full Proposal Submission Deadline:** Anytime

**Contacts:** Peter H. McCartney [pmccartn@nsf.gov](mailto:pmccartn@nsf.gov) (703) 292-8470

Jennifer W. Weller [jweller@nsf.gov](mailto:jweller@nsf.gov) (703) 292-7121

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## National Institutes of Health

### **Grant Program: BRAIN Initiative: Research on the Ethical Implications of Advancements in Neurotechnology and Brain Science (R01 Clinical Trial Optional)**

**Agency: National Institutes of Health RFA-MH-19-400**

**RFP Website:** <https://grants.nih.gov/grants/guide/rfa-files/RFA-MH-19-400.html>

**Brief Description:** This FOA seeks to provide opportunities to directly consider the integration of ethical issues with BRAIN-supported scientific advances. Specifically, this FOA seeks to support efforts addressing core ethical issues associated with research focused on the human brain and resulting from emerging technologies and advancements in research and development supported by the BRAIN Initiative. The hope is that efforts supported under this initiative might be both complimentary and integrative with the transformative, breakthrough neuroscience discoveries supported through the BRAIN Initiative.

While there are many ethical topics that might be suitable for leveraging an integrated research approach, input from the Neuroethics Working Group (<https://braininitiative.nih.gov/about/neuroethics.htm>) of the BRAIN Multi-Council Working Group and feedback from a Request For Information (RFI) on BRAIN Neuroethics has helped inform priority areas of ethics best suited for this FOA. Indeed, the BRAIN Initiative currently supports several research project grants focused on neuroethics. For this FOA, applications that focus on the following areas relevant to the BRAIN Initiative would be considered of particular interest:

- Research on risk/benefit analyses and informed consent practices in human neuroscience research with neural devices, and long-term obligations to patient populations
- Studies that probe the ethical implications/considerations of both collecting large volumes of brain data and the sharing of such for broader scientific purposes
- Studies that explore the evolving richness of collected human neural data and considerations such as data ownership, access, de-identification and re-use practices, privacy, and unintended uses
- Studies that consider the ethical implications of evolving neuromodulation and neuroimaging technologies, specifically as they pertain to the infrastructure of these technologies (activation and monitoring of devices, long-term maintenance, data security, intended and unintended use of these new technologies)
- Studies that empirically consider different perspectives on the distinction between invasive versus non-invasive brain imaging and/or neuromodulation; particularly as those views are similar or different between groups such as participants, researchers, physicians, families, and the broader public view
- The ethical implications of access to and use of emerging neurotechnologies and their relationship to informed consent (participant perspective on the consent process, consent with special populations, changes in consent capacity associated with disease progression)
- Ethical issues unique to research that leverages opportunities with human brain tissue
- Ethical issues associated with predictive/diagnostic research related to brain disorders
- Public, researcher, and/or research participant attitudes and decision-making about monitoring or modulating brain function for purposes of improving our understanding of human brain function and/or reducing illness and disability due to brain diseases and disorders
- Cybersecurity/privacy considerations, such as effective security and safeguards for human brain data and wireless transmissions to/from neural devices; gaps/provisions needed in existing regulatory models
- Studies focused on the advances in neural recording and/or neuromodulation specifically for use in children
- Research efforts to link neural data with behavioral data to better understand and/or diagnose brain diseases and disorders

**Award:** Application budgets are limited to \$300,000 in direct costs in any project year and need to reflect the actual needs of the proposed project.

**Letter of Intent:** 30 days prior to the application due dates

**Deadline:** February 4, 2019, October 9, 2019 and October 9, 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. No late applications will be accepted for this Funding Opportunity Announcement.

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.

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**Grant Program: Innovation Corps (I-Corps™) at NIH Program for NIH and CDC Translational Research (Admin Supp Clinical Trial Not Allowed)**

**Agency:** National Institutes of Health PA-19-029

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PA-19-029.html>

**Brief Description:** The goal of the I-Corps Program is to accelerate the translation of biomedical research to the marketplace by providing training to SBIR and STTR awardees in the areas of innovation and entrepreneurship. Under this program, the NIH and CDC foster the development of early-stage biomedical technologies, focus on teaching researchers how to gain a clearer understanding of the value of their inventions in the marketplace, and ultimately how to advance their technologies from the research lab into the commercial world. This program is designed to complement activities within the scope of the parent SBIR Phase I (R43) or STTR Phase I (R41) grant or the Phase I portion of an SBIR/STTR Fast-Track grant (R44/R42, respectively), to help accelerate the commercialization of new products and services derived from NIH- and CDC-funded technical feasibility studies.

Through this program, I-Corps teams will participate in an entrepreneurial immersion course. The I-Corps curriculum uses a hypothesis-driven method of customer discovery in order to gain insights into the issues associated with technology commercialization. As part of this program, participants are required to get "out of the lab" and gather information by conducting a large number of interviews (i.e., 100+) with potential customers, strategic partners, and other third-party stakeholders. During the course, I-Corps teams share what they learn with instructors and other teams, gaining new insights into the prospective impact of the technology being developed under the SBIR or STTR grant. Instructors for the course are sourced from the National Science Foundation's National Innovation Network, and each instructor is trained in delivering the I-Corps curriculum. It is anticipated that the feedback and learning gained during the I-Corps program will help inform future Phase II SBIR/STTR projects and commercialization strategies.

The I-Corps program will be supported through administrative supplement awards to active NIH or CDC SBIR and STTR Phase I grantees. Administrative supplement awards are intended only to support travel and other costs associated with the training program. A cohort (up to 24 teams per cohort) will be selected to participate in the I-Corps at NIH program, which is expected to last approximately eight weeks.

**Award:** Application budgets are limited to no more than \$55,000 in total direct costs and must reflect the actual needs of the proposed project. Note in Section IV.2 that proposed budgets should also include \$22,000 per team to cover workshop registration fees (\$22,000 out of the total budget allowed of \$55,000).

**Letter of Intent:** Not Applicable

**Deadline:** November 19, 2018; January 28, 2019 by 5:00 PM local time of applicant organization.

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

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**Grant Program: Basic Neurodevelopmental Biology of Brain Circuits and Behavior (R21 Clinical Trial Not Allowed)**

**Agency: National Institutes of Health PAR-19-028**

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PA-19-028.html>

**Brief Description:** This FOA encourages projects, using *in vivo* measures in awake, behaving rodents and non-human primates, that propose to: 1) examine the pre- and post-natal developmental trajectories of neural circuits associated with formation, maintenance and plasticity of cognitive, emotional and social behaviors; 2) implement new approaches, longitudinal designs, and/or causal manipulations to study changes in these networks across developmental trajectories; AND/OR 3) investigate, in animals, processes that have been robustly associated with dysfunctions in neurodevelopmental trajectories and/or mental-health relevant behaviors in humans.

Application of computational modeling approaches to better delineate critical neurodevelopmental parameters and/or to predict the dynamics of behavior changes with development are encouraged. The use of newly-developed tools (such as those from the NIH BRAIN Initiative) to better understand a specific neurodevelopmental question is encouraged. However, tool development per se would not be responsive to this FOA.

Applications should include all three of the following experimental approaches:

- 1) Experiments in rodents or non-human primates. Investigators should justify their choice of species within the framework of mental-health relevant behaviors and demonstrate that the experimental paradigms used are appropriate to the species studied. Manipulations and measures should reflect underlying questions about the neural circuit under study.
- 2) Focus on a neurodevelopmental trajectory via inclusion of at least three time-points. Time points should fall between pre-natal development and early adulthood. In addition to considering the relevance of chosen time-points to mental health, investigators should justify their choice of time-points in relation to known or hypothesized developmental events or transitions in the species under study.
- 3) Concurrent behavioral and brain measures. *In vivo* neural measures of circuits function in awake-behaving animals are required. Mechanistic studies should include a careful theoretical and experimental decomposition of behavior and state-of the art neuroscience techniques designed to elucidate neural algorithms that generate behavior.

**Data Rigor:** Translating discoveries into evidence-based treatments is predicated on the existence of strong, well powered, adequately controlled, and replicated data. In addition, the value of such research is greatly enhanced when detailed information is made available about study design, execution, analysis and interpretation. Examples of critical elements are detailed in [NOT-OD-15-103](#).

**Award:** The combined budget for direct costs for the two year project period may not exceed \$275,000. No more than \$200,000 may be requested in any single year.

**Letter of Intent:** Not Applicable

**Deadline:** February 4, 2019, 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.

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**Grant Program: BRAIN Initiative Cell Census Network (BICCN) ? Scalable Technologies and Tools for Brain Cell Census (R01 Clinical Trial Not Allowed)**

**Agency: National Institutes of Health RFA-MH-19-148**

**RFP Website:** <https://grants.nih.gov/grants/guide/rfa-files/RFA-MH-19-148.html>

**Brief Description:** The BRAIN Initiative Cell Census program awarded 9 collaborative projects in 2017 and 5 in 2018 under four companion FOAs ([RFA-MH-17-210](#), [-215](#), [-225](#), and [-230](#)), which collectively constitute the BRAIN Cell Census Network (BICCN). The overarching goal of the BICCN is to

generate comprehensive 3D common reference brain cell atlases that will integrate molecular, anatomical, functional, and cell lineage data for describing cell types in mouse, human, and non-human primate brains. The expected outcomes of the BICCN include:

- fundamental knowledge on diverse cell types and their three dimensional organizational logic in the brain;
- an open-access 3D digital brain cell reference atlas with molecular, anatomical, and physiological annotations of brain cell types in mouse;
- a comprehensive neural circuit diagram in mouse brain;
- reagents for cell-specific targeting;
- validated high throughput and low-cost approaches to characterizing cell diversity in human and/or non-human primate brain samples.

The BICCN operates as a cooperative network to promote collaboration and coordination among the projects within the Network and the BRAIN Initiative, as well as with any external research entities that have similar goals. Currently the BICCN has established close collaboration and coordination relationship with Data Archive projects funded under [RFA-MH-17-255](#). It is expected that the BICCN awardees and their collaborators will work together to achieve the common goals. This will involve regular meetings and other coordinated activities within the BICCN as well as in the BRAIN Initiative and more broadly with the research and education communities. Thus, the BICCN will leverage existing atlases and common coordinate systems to facilitate collaborative efforts for the data annotation and 3D spatial mapping.

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

**Letter of Intent:** December 22, 2018 and December 24, 2019

**Deadline:** January 22, 2019 and January 24, 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.

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**Grant Program: NIH Blueprint Program for Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (R25 Clinical Trial Not Allowed)**

**Agency: National Institutes of Health RFA-NS-19-007**

**RFP Website:** <https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-19-007.html>

**Brief Description:** The overarching objective of this funding opportunity is to encourage individuals from diverse backgrounds, including those from groups underrepresented in the biomedical, behavioral, and clinical research workforce, to pursue further studies or careers in. To achieve this goal, the initiative will support neuroscience research education programs comprised of year-round authentic neuroscience research experiences, research and career development, and establishment of professional networks, implemented through collaborative partnerships integrated across different educational institution types. Proposed program interventions in response to this FOA should focus on asset models and leadership opportunities, rather than solely deficit models and remediation ([recommendations](#) from 2017 NINDS Activating a Neural Network and 2016 NINDS Forming a Neural Network Workshops).

Participating components of the collaborative research education partnerships should include:

- **One or more institutions** that either: 1) have a historical and current mission to educate students from any of the populations that have been identified as underrepresented in biomedical research as defined by the National Science Foundation NSF, see <http://www.nsf.gov/statistics/wmpd/>) (i.e., African Americans or Blacks, Hispanic or Latino Americans, American Indians, Alaska Natives, Native Hawaiians, U.S. Pacific Islanders, and persons with disabilities) or 2) have a documented track record of recruiting, training and/or educating, and graduating underrepresented students as defined by NSF

(see above), which has resulted in increasing the institution's contribution to the national pool of graduates from underrepresented backgrounds who pursue biomedical research careers;

- A research-intensive institution, defined as having an existing neuroscience or neuroscience-related program and a significant number of potential mentors with NIH R01 or equivalent extramural research support;
- Formal alliances with one or more institutions with neuroscience-focused graduate research training programs that can provide summer research experiences for participating ENDURE students. Such institutions may hold NIH T32 research training grants, including T32 programs supported by the NIH Jointly Sponsored Institutional Predoctoral Training Programs in the Neurosciences (<https://researchtraining.nih.gov/JSPTPN>). Additional relevant neuroscience programs can be found by using the NIH RePORTER tool (<http://projectreporter.nih.gov/reporter.cfm>). These alliances are expected to actively facilitate early communication and interaction among participating students and NIH neuroscience predoctoral program training directors.

To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on:

- **Research Experiences:** The program must include part-time authentic neuroscience research experiences in extramurally-funded laboratories during the academic year at the home institution or one of the partnering institutions. There must also be full-time summer neuroscience research experiences in laboratories that are part of a neuroscience-focused graduate research training program, such as an NIH Institutional Research Training predoctoral program (T32), and which may be located on or off-site of the partnering institutions. The academic year and summer research training experiences across applicant institutions must be carefully monitored. Regularly-scheduled internal review and assessment should be made regarding the progressive scientific skill sets being developed through the research education experiences, the type of mentoring and supervision students are receiving, and the monitoring and evaluation plans for both the students and research mentors. Specific measurable research education and research training objectives are to be determined by the applicant institutions. Examples of measurable objectives include: number of students matriculating through the research education programs and admitted to graduate programs in the neurosciences; improvement in students' quantitative skills and academic achievement; and improvement in scientific writing and presentation skills.
- **Mentoring Activities:** Programs must provide students with outstanding mentoring and education in other critical skills such as leadership, grant and manuscript writing, and time management. There should be dedicated efforts at providing not only technical expertise, but advice, insight, and professional career skills to students in the program.
- NIH realizes that quality mentorship is critical to the recruitment and retention of scientists, including those from underrepresented backgrounds, and encourages program activities to improve the caliber of mentorship. As recommended in the [2018 NASEM report on graduate education](#), "modules for faculty to learn how to advise and mentor students from different backgrounds and to raise awareness and accountability about their role in changing the training and mentoring environment" should be a component of a well designed program. For example, case-based scenarios may be used to educate mentors on various relevant ethical, professional and cultural issues facing students today, effective communication and mentoring compacts, and effective tools for mentors to address cultural awareness.
- **Courses for Skills Development:** Courses should be integrated across the partnering institutions and uniquely designed to increase students' interest in and preparation to enter



Ph.D. degree programs in the neurosciences. Depending on the strength of the applicant institution, it is expected that academic and curriculum enhancement activities may vary in how they are formalized and integrated; various strategies, rooted in education research, may be utilized. These approaches may include, but are not limited to: core neuroscience coursework tailored to students' backgrounds and needs; development of interdisciplinary or advanced courses with focus on inquiry-based learning or critical thinking and development of experimental rigor and quantitative skills to address neuroscience problems (as recommended in [Developing a 21st Century Neuroscience Workforce](#)); curriculum for specialized research techniques; collaborative learning experiences and group activities to convey the excitement and relevance of neuroscience to students; advisement regarding the number, level, and sequence of math and science courses that students should take to be competitive for graduate school programs in the neurosciences; seminars emphasizing scientific reading comprehension, writing, and oral presentation skills; and research career seminars to help prepare students for the transition from undergraduate to graduate school.

**Award:** Although the size of award may vary with the scope of the research education program proposed and there are no specific budget limitations, the requested direct costs must be reasonable, well documented, fully justified and commensurate with the scope of the proposed program.

**Letter of Intent:** January 15, 2019

**Deadline:** February 15, 2019, 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.

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### **Grant Program: Imaging - Science Track Award for Research Transition (I/START) (R03 Clinical Trial Optional)**

**Agency:** National Institutes of Health PAR-18-918

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-18-918.html>

**Brief Description:** The goal of this Funding Opportunity Announcement (FOA) is to facilitate the entry of investigators to the area of brain imaging research, including both new investigators and established investigators seeking to add brain imaging to their research programs. Accordingly, this FOA invites applications for the Imaging - Science Track Award for Research Transition (I/START) program, a continuing program developed by NIDA to foster the entry of investigators into the areas of brain imaging and drug abuse research. The application of brain imaging technology that can be used in humans is becoming more widespread; however, it is often difficult for new investigators or even established investigators wishing to incorporate such brain imaging methods in their research program to obtain independent funding to generate preliminary data in this area or for more established investigators to identify a source of funding that would allow them to explore the potential application of imaging to their research. In many research domains, investigators are often able to identify sources of support sufficient to conduct preliminary studies. In contrast, the cost of obtaining preliminary data using brain imaging methods that can be used in humans (e.g., PET and MRI scans) often serves as a significant barrier to research, particularly for more translational efforts. This FOA will allow for study design and collection of "proof of concept" brain imaging data that can then be used as pilot data for the transition to more extensive research applications.

**Award:** Application budgets are not limited but 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.

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**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.

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

**Grant Program: Machine Common Sense (MCS)**

**Agency: Department of Defense DARPA HR001119S0005**

**Website:**

[https://www.fbo.gov/index?s=opportunity&mode=form&id=f98476244ba0c06de9e0b38bfe75f54d&tab=core&\\_cview=1](https://www.fbo.gov/index?s=opportunity&mode=form&id=f98476244ba0c06de9e0b38bfe75f54d&tab=core&_cview=1)

**Brief Description:** DARPA is soliciting innovative research proposals in the area of machine common sense to enable Artificial Intelligence (AI) applications to understand new situations, monitor the reasonableness of their actions, communicate more effectively with people, and transfer learning to new domains. Here are four use cases that apply to single AI applications, symbiotic human-machine partnerships, and autonomous systems: • Sensemaking – any AI system that needs to analyze and interpret sensor or data input could benefit from a machine commonsense service to help it understand real-world scenes and situations. • Monitoring the reasonableness of machine actions – a machine commonsense service would provide the ability to monitor and check the reasonableness of any AI system’s actions and decisions, especially in novel situations. • Human-machine collaboration – all human communication and understanding assumes a background of common sense. Machines need to have a basic level of human-like common sense to effectively communicate and collaborate with humans. • Transfer learning (adapting to new situations) – reusable commonsense knowledge would provide a foundation for AI systems to learn new domains and adapt to new situations without voluminous specialized training or programming.

**Awards:** Multiple

**Proposal Deadline:**

Abstract Due Date: November 6, 2018, 12:00 noon (ET) o Proposal Due Date: December 18, 2018, 12:00 noon (ET) o BAA Closing Date: December 18, 2018, 12:00 noon (ET).

**Contact Information:** David Gunning, Program Manager, DARPA/I2O o BAA Email: [mcs@darpa.mil](mailto:mcs@darpa.mil)

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**Grant Program: Accelerated Molecular Discovery (AMD)**

**Agency:** Department of Defense DARPA HR001119S0003

**Website:**

[https://www.fbo.gov/index?s=opportunity&mode=form&id=dce9a69eca4f0f4d0c789ed6dcc2475c&tab=core&\\_cview=1](https://www.fbo.gov/index?s=opportunity&mode=form&id=dce9a69eca4f0f4d0c789ed6dcc2475c&tab=core&_cview=1)

**Brief Description:** The Defense Sciences Office (DSO) at the Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals in the area of autonomous molecular design to accelerate the discovery, validation and optimization of new, high-performance molecules for Department of Defense (DoD) needs. Specifically, DARPA seeks to develop new, systematic approaches that increase the pace of discovery and optimization of high-performance molecules through development of closed-loop systems that exploit, build and integrate tools for: 1) extracting existing data from databases and text; 2) executing autonomous experimental measurement and optimization; and 3) incorporating computational approaches to develop physics-based representations and predictive tools. Such methods will ultimately enable AI-based design and discovery of completely new molecules that are optimized across multiple molecular properties for specific DoD applications. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, and systems related to small organic molecules. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

**Awards:** Multiple

**Proposal Deadline:**

Abstract Due Date: November 1, 2018, 4:00 p.m. o FAQ Submission Deadline: January 3, 2019, 4:00 p.m. See Section VIII.A. o Full Proposal Due Date: January 14, 2019, 4:00 p.m.

**Contact Information:** Anne Fischer, Program Manager, DARPA/DSO; BAA Email: [AMD@darpa.mil](mailto:AMD@darpa.mil)

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**Grant Program: Electronic Warfare Technology****Agency: Department of Defense ONR N00014-19-R-S002****Website:** <https://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Special-Notices>

**Brief Description:** The proposed topic will explore and exploit the technical opportunities for discovery and invention in the area of Electronic Warfare (EW). The goal of EW is to control the Electromagnetic Spectrum (EMS) by exploiting, deceiving, or denying enemy use of the spectrum while ensuring its use by friendly forces. To that end, the Office of Naval Research (ONR) EW Discovery and Invention (D&I) program invests in Science and Technology (S&T) initiatives that will provide naval forces (including Navy and Marine Corps) with improved threat warning systems; Electronic warfare Support (ES); decoys and countermeasures against weapon tracking and guidance systems; Electronic Attack (EA) against adversary Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR); and Electronic Protection (EP) of our own weapons and C4ISR from intentional and unintentional interference.

ONR Code 312 Electronic Warfare (312EW) seeks proposals to develop and demonstrate technologies for the next generation systems in electronic warfare. White papers and subsequent proposals should address technology developments in one or more of the following Research Opportunity Technical Areas (TA) 1-4.

**Awards:** Multiple**Proposal Deadline:**

White Paper Submission Date 12/07/2018 4:00pm Eastern Local Time Notification of White Paper Evaluation\* 01/10/2019 Oral Presentation - Invitation Only 01/23/2019 – 01/24/2019 Notification of Oral Presentation Evaluation 01/29/2019 Full Proposal Submission Date 02/28/2019 4:00pm Eastern Local Time

**Contact Information:** Stephen Hughes Contracting Officer**Grant Program: Microsystems Technology Office (MTO)****Agency: Department of Defense DARPA HR001118S0060****Website:**[https://www.fbo.gov/index?s=opportunity&mode=form&id=68dfd959363ffdeb96f61c065e212ef7&tab=core&\\_cview=1](https://www.fbo.gov/index?s=opportunity&mode=form&id=68dfd959363ffdeb96f61c065e212ef7&tab=core&_cview=1)

**Brief Description:** Since its inception in 1991, MTO has helped create and prevent strategic surprise through investments in compact microelectronic components such as microprocessors, microelectromechanical systems (MEMS), and photonic devices. MTO's revolutionary work applying advanced capabilities in areas such as wide-band gap materials, phased array radars, high-energy lasers, and infrared imaging have helped the United States establish and maintain technological superiority for more than two decades. MTO seeks to develop high-risk, high-reward technologies that continue DARPA's mission of creating and preventing strategic surprise, help to secure the Department of Defense's (DoD) technological superiority, and address the complex threats facing U.S. national security. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice. As MTO evolves to address future microsystems-related challenges, the office has identified three target thrust areas: (1) Electronics: Managing Moore's Inflection, (2) Spectrum: Enhancing Our Advantage with Agility and Autonomy, and (3) Sensors: Decentralized Sensors for the DoD.

**Awards:** Multiple**Proposal Deadline:**

Abstract Due Date: Abstracts may be submitted on a rolling basis until 1:00PM on May 26, 2020. o

Proposal Due Date: Proposals may be submitted on a rolling basis until 1:00PM on June 26, 2020.

**Contact Information:** Dr. William Chappell Director, Microsystems Technology Office BAA

Coordinator: [HR001118S0060@darpa.mil](mailto:HR001118S0060@darpa.mil)

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**Grant Program: AFRL/RXC Structural Materials Open BAA**

**Agency: Department of Defense Air Force -- Research Lab FA8650-18-S-5010**

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

**Brief Description:** Air Force Research Laboratory, Materials & Manufacturing Directorate, Structural Materials Division, AFRL/RXC, is soliciting white papers and potentially technical and cost proposals under this announcement that support the needs of its Structural Materials and Applications mission. Structural Materials technologies that range from materials and scientific discovery through technology development and transition are of interest. Descriptors of Materials and Manufacturing Directorate technology interests are presented in two contexts in the Statement of Objectives (BAA Attachment 1); that of structural materials science and engineering academic “competencies,” and that of Air Force application area needs.

**Awards:** Up to \$5,000,000; Available program funding: \$99,500,000

**Proposal Deadline:**

White Paper Submission: 20 September 2023

Proposal Submission: Due followed by white paper submission and review

**Contact Information:** Adrianna Menker Contracting/Grants Officer Phone 937-713-9924

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**Grant Program: Information Innovation Office (I2O) Office-wide**

**Agency: Department of Defense DARPA HR001118S0057**

**Website:**

[https://www.fbo.gov/index?s=opportunity&mode=form&id=231c6de648bed959a18d8a439f1f32dd&tab=core&\\_cview=1](https://www.fbo.gov/index?s=opportunity&mode=form&id=231c6de648bed959a18d8a439f1f32dd&tab=core&_cview=1)

**Brief Description:** Modern society depends on information and information depends on information systems. Timely, insightful, reliable, and relevant information is essential, particularly for national security. The Information Innovation Office (I2O) sponsors basic and applied research in three thrust areas to ensure information advantage for the U.S. and its allies:

- **Symbiosis.** I2O envisions a future in which machines are more than just tools that execute human-programmed rules or generalize from human-curated data sets: rather, machines will become partners in problem solving. Enabling computing systems in this manner is of critical importance because sensor, information, and communication systems generate data at rates far beyond what humans can assimilate and understand for enabling effective action. Incorporating these technologies into military systems that collaborate with warfighters will facilitate better decisions in complex, time-critical, battlefield environments; enable a shared understanding of massive, incomplete, and contradictory information; and enable unmanned systems collaborating with human warfighters to perform missions safely and with higher degrees of autonomy.

- **Analytics.** The human domain is an increasingly important aspect of military strategy. What has changed is the capability to interact with populations on a global scale through the connectedness provided by the Internet, social media and other information ecosystems. We need analytical tools and technologies that rapidly transform the data and information in these ecosystems into effective courses of action for conflict resolution, stabilization, and other complex challenges. These tools and technologies enable an emerging data-centric paradigm: collect/curate data emphasizing the human domain but inclusive of all other domains; analyze data for entities, relationships, and trends; synthesize models for situational



awareness, prediction, and intervention; and engage allies, stakeholders, and adversaries through appropriate channels.

• **Cyber.** Direct cyber threats against our information systems have grown in sophistication and number. Adversaries have at their disposal a growing diversity of means (including advanced persistent threats, botnets, denial of service attacks, and other sophisticated capabilities) with which to threaten critical infrastructure, embedded computing systems, cyber-physical systems, and enterprise information systems. The information and operational technology used in networks and systems must operate through a cyber-attack or enable rapid recovery from such an attack. Subtle or overt escalations of cyber conflict intensity and adversary attacks must be detected, understood, and attributed in a timely fashion. The U.S. must have the ability to mount an accurate, timely, effective, and appropriately-scaled cyber response to any cyber-attack, a response that is calibrated to discourage further escalation.

**Awards:** Multiple awards are anticipated. The level of funding for individual awards made under this solicitation has not been predetermined and will depend on the quality of the proposals received and the availability of funds.

**Proposal Deadline:** Abstract Due Date: July 18, 2019, 12:00 noon (ET) o Proposal Due Date: August 30, 2019, 12:00 noon (ET)

**Contact Information:** BAA Coordinator, DARPA/I2O • BAA Email: [HR001118S0057@darpa.mil](mailto:HR001118S0057@darpa.mil)

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## **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](mailto:help@eBRAP.org)

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**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

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**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](http://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](mailto:EducationGrantInquiries@ed.gov)

Program Manager: Molly Faulkner-Bond e-Mail: [Molly.Faulkner-Bond@ed.gov](mailto:Molly.Faulkner-Bond@ed.gov) .

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## **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

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## **Department of Energy**

### **Grant Program: Transformational Sensing Capabilities for Monitoring the Subsurface**

**Agency: Department of Energy DE-FOA-0001998**

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

**Brief Description:** The purpose of this Request for Information (RFI) is to seek information from stakeholders such as industry, academia, nonprofits, and research institutions about Research and Development (R&D) activities that could lead to development of transformational sensing capabilities for monitoring parameters associated with CO<sub>2</sub> injection throughout the storage complex, including: overburden, reservoir, and underburden. This includes fluid flow throughout the reservoirs into the far field through critical but difficult-to-detect features such as faults and integrated fracture networks. Of particular interest are transformational sensors or sensing systems that will improve the ability to monitor movement of fluids in the subsurface and the ability to measure critical subsurface properties throughout a commercial-scale (greater than 50 million metric tons CO<sub>2</sub> stored) storage complex. A storage complex consists of: (1) one or more storage reservoirs, with permeability and porosity that allow injection and storage of CO<sub>2</sub>; and (2) one or more low-permeability seals, which enclose the reservoir(s) and serve as barriers to migration of CO<sub>2</sub> out of the reservoir.

**Awards:** Various

**Submission Deadline:** Responses to this RFI must be submitted electronically to: [DE-FOA0001998@netl.doe.gov](mailto:DE-FOA0001998@netl.doe.gov) with the subject line "DE-FOA0001998 - RFI" no later than 8:00 PM (ET) on December 3, 2018.

**Contact Information:** John R. Hatfield [John.Hatfield@netl.doe.gov](mailto:John.Hatfield@netl.doe.gov)

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**Grant Program: Advanced Systems Integration for Solar Technologies**

**Agency:** Department of Energy DE-FOA-0001987

**Website:** <https://eere-exchange.energy.gov/#FoaId3c598467-b778-45b1-b2a0-7fc4a14e1456>

**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 Systems Integration for Solar 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:** Various

**Submission Deadline:** Letter of Intent Deadline: 11/14/2018 5:00 PM ET

- Full Application Submission Deadline: 12/7/2018 5:00 PM ET

**Contact Information:** [Maureen.Davison@NETL.DOE.GOV](mailto:Maureen.Davison@NETL.DOE.GOV)

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**Grant Program: Big Data Analysis of Synchrophasor Data**

**Agency:** Department of Energy DE-FOA-0001861

**Website:**

<https://www.fedconnect.net/FedConnect/default.aspx?ReturnUrl=%2ffedconnect%3fdoc%3dDE-FOA-0001861%26agency%3dDOE&doc=DE-FOA-0001861&agency=DOE>

**Brief Description:** The goal of this FOA is to explore the use of big data, artificial intelligence (AI), and machine learning technology and tools on PMU data to identify and improve existing knowledge, and to discover new insights and tools for better grid operation and management. Applicants selected for award will receive pre-packaged datasets assembled exclusively for their use executing awards resulting from this FOA. Applicants selected for award will be asked to address specific questions and research areas regarding the data. Applicants selected for award will publicly present their analytical results at a DOE-sponsored event to inform stakeholders in the electricity sector who develop and use analytical and decision-making tools on PMU and other power system data.

**Awards:** Up to \$1,000,000; Available funding: \$8,000,000

**Submission Deadline:** November 9, 2018

**Contact Information:** [Maureen.Davison@NETL.DOE.GOV](mailto:Maureen.Davison@NETL.DOE.GOV)

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**NASA**

**Grant Program: Solar System Exploration Research Virtual Institute Cooperative Agreement Notice (SSERVI CAN-3)**

**Agency:** NASA NNH18ZDA018C



**Website:** <https://nspires.nasaprs.com/external/solicitations/summary!init.do?solId=%7BDBFE67A3-498A-66A0-3102-3F100B5D0779%7D&path=open>

**Brief Description:** NASA, through the release of this Cooperative Agreement Notice (CAN), is announcing an opportunity for the submission of multi-institutional team-based proposals for research as participating members of the Solar System Exploration Research Virtual Institute (SSERVI), hereafter referred to as "the Institute." Proposals must clearly articulate an innovative research program addressing basic and/or applied research fundamental to understanding the nature of the Moon, Near Earth Asteroids (NEAs), the martian moons Phobos and Deimos, and the near space environments of these bodies, to enable eventual human exploration of these destinations. Although the Institute will continue to support research addressing all of these potential human exploration destinations, in light of the administration's focus on returning to the Moon, as well as the near-term opportunities that will be provided by the burgeoning commercial lunar industry, proposals which address these near-term lunar needs and opportunities will be given preference. Proposed research that complements current CAN-2 Institute Teams, and/or addresses important research areas not currently covered in the Institute, will be given strong consideration (see: <http://sservi.nasa.gov/sserviteams/>).

**Awards:** Various

**Proposal Deadline:** Step-1 Proposal due on October 19, 2018

Step-2 Full proposals are Due: 11:59 PM Eastern Time on December 18, 2018.

**Contact:** Dr. Sarah Noble Science Mission Directorate NASA Headquarters [HQ-SSERVI@mail.nasa.gov](mailto:SSERVI@mail.nasa.gov)

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### **Grant Program: Use of the NASA Physical Sciences Informatics System - Appendix E**

**Agency:** NASA NNH17ZTT001N-17PSI-E

**Website:** <https://nspires.nasaprs.com/external/solicitations/summary!init.do?solId={2AF0A877-0C3F-8E34-5954-223EAAD4CBB4}&path=open>

**Brief Description:** This National Aeronautics and Space Administration (NASA) Research Announcement (NRA) solicits ground-based research proposals using an open science approach to develop new analyses and generate new scientific insights by utilizing experimental data residing in NASA's Physical Sciences Informatics (PSI) system (<https://psi.nasa.gov>), an online database of completed physical science reduced-gravity flight experiments conducted on the International Space Station (ISS), on Space Shuttle flights, or on Free Flyers, and related ground-based studies. The goals of this NRA are to: a) promote investigations making use of currently available experimental data resulting in more scientists participating in reduced-gravity research; b) allow new areas of research and discovery to occur more quickly through open access; and c) accelerate the "research to product or publication" timeline through the rapid sharing of data. The PSI system allows researchers to data mine information generated by experiments conducted as part of NASA's Physical Sciences Research Program in support of NASA's Space Life and Physical Sciences Research and Applications (SLPSRA) Division. In this manner PSI meets the requirements of the nation's Open Data Policy, which states that "Government information shall be managed as an asset throughout its life cycle to promote interoperability and openness, and, wherever possible and legally permissible, to ensure that data are released to the public in ways that make the data easy to find, accessible, and usable." (Executive Order May 9, 2013, "Making Open and Machine Readable the New Default for Government Information"). In accordance with this policy, all awardees from this NRA must upload data, new analytical or numerical models, tools, and software produced from the funded research into the PSI system. This solicitation is open to researchers from all categories of U.S. and non-U.S. organizations, including educational institutions, industry, nonprofit organizations, NASA Centers, and other U.S. Government agencies. This NRA is soliciting proposals from two types of investigators: 1) established researchers from all categories of U.S. and non-

U.S. organizations; 2) graduate students (with advisors) from accredited U.S. postsecondary institutions and programs. The proposals from graduate students must be submitted by their advisor.

**Awards:** Various

**Notice of Intent:** Not Required

**Proposal Deadline:** December 14, 2018

**Contact:** Dr. Francis Chiaramonte, Program Scientist for Physical Sciences

NASA Headquarters

E-mail: [francis.p.chiaramonte@nasa.gov](mailto:francis.p.chiaramonte@nasa.gov)

Phone: 202-358-0693

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## **National Endowment of Humanities**

### **Grant Program: Collaborative Research Grants**

**Agency:** National Endowment of Humanities

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

**Brief Description:** Collaborative Research grants support groups of two or more scholars engaging in significant and sustained research in the humanities. The program seeks to encourage projects in a single field of study, as well as interdisciplinary work, both within the humanities and beyond. Projects that include partnerships with researchers from the natural and social sciences are encouraged, but they must remain firmly rooted in the humanities and must employ humanistic methods. Collaborators may be drawn from a single institution or several institutions across the United States; up to half of the collaborators may be based outside of the U.S. Partnerships among different sorts of institutions are welcome: for example, research universities might partner with teaching colleges, libraries, museums, or independent research institutions.

Eligible projects must propose tangible and sustainable outcomes such as co-authored or multi-authored books; born-digital publications; themed issues of peer-reviewed journals; and open-access digital resources. All project outcomes must be based on and must convey interpretive humanities research. All award recipients are expected to disseminate the results of their work to scholarly audiences and/or general audiences.

Funding is available for sustained full-time or part-time activities during the period of performance to facilitate collaboration. Funds may be requested to cover, where appropriate, salary replacement; compensation of collaborators, consultants, and research assistants; fringe benefits; and travel, lodging, and per diem costs. Indirect costs can be included. NEH is rarely able to cover the full cost of a project. For that reason, funding from other sources and cost sharing are expected but not required. (See the budget instructions below for additional information.)

**Award:** Collaborative Research offers three types of awards to address different sorts of projects and stages of development.

#### **Type 1: Convening Grants – up to \$50,000**

Convening grants last one year and typically fund conferences and working group meetings to sharpen the chosen research topic and discuss and plan subsequent publication.

#### **Type 2: Publication Grants – up to \$250,000 (no more than \$100,000 per year)**

Publication grants last one to three years and support the project toward completion of its publication goals. Publications can appear in traditional print or in digital form. Note that costs paid to publishers and subventions are not supported.

A Type 1 Convening Grant can be used to plan and prepare for a Type 2 Publication Grant in a subsequent year. A Type 1 grant is not, however, a prerequisite for a Type 2 grant. Collaborators who have done their planning and are ready to work toward completion and publication can apply directly for a Type 2 Publication grant.

**Type 3: Archaeology Grants – up to \$250,000 (no more than \$100,000 per year)**

Archaeology grants last one to three years and support projects that lead to publication. Excavation is not required.

**Proposal Deadline:** Application available: October 5, 2018

Application due: December 5, 2018

Expected notification date: August 30, 2019

Draft due: October 15, 2018

Project start date: October 1, 2019

**Contact:** Contact the Division of Research Programs Team 202-606-8200 [collaborative@neh.gov](mailto:collaborative@neh.gov).

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**Rotary Foundation**

**Grant Program: Alzheimer’s Research**

**Agency: Rotary Foundation**

**Website:** <http://www.cartfund.org/cart/applying-for-a-grant/>

**Brief Description:** The goal of the fund is to encourage exploratory and developmental AD research projects within the United States. This is accomplished by providing financial support for the early and conceptual plans of those projects that may not yet be supported by extensive preliminary data but have the potential to substantially advance biomedical research. These projects should be distinct from those designed to increase knowledge in a well-established area unless they intend to extend previous discoveries toward new directions or applications.

Annually, the CART Fund invites interested applicants from within the United States only to submit a LETTER-of-INTENT that includes sufficient detail to communicate the importance of the study as well as information on its feasibility.

The Letter-of-intent must be submitted as a PDF file. The Letter should include the following: (1) Contact information; (2) a statement (two page limit) containing: the hypothesis of the project; the specific aims; a description of the experimental design, methods and model systems; (3) a statement (one page limit) giving future directions this research could lead to including a reference to the health relationship of the project and (4) a biographical statement of the principal investigator ( two page limit, and only one principal investigation may be listed). Letters-of-Intent should emailed to [gagoforth@earthlink.net](mailto:gagoforth@earthlink.net).

**Award:** Applications may encompass a project period of up to two years with a combined budget for direct cost up to \$250,000. No indirect costs are allowed. Eligible applications may come from full time faculty (or equivalent status) at U.S. based public and private institutions, such as universities, colleges, hospitals, and laboratories. This is for NEW projects only. Applications will be deemed ineligible from for-profit organizations and those outside of the U.S., as well as those already supported by regular or program grants. At least one award up to \$250,000 will be made each year.

**Proposal Deadline:**

**Monday, December 3, 2018:** Deadline for Letter of Intent (Letters must be sent electronically. Receipt of letters will be acknowledged electronically)

**Monday, January 14, 2019:** Notification of applicants of selection of finalists.

**Friday, February 22, 2019:** Deadline for submission of full grant applications by finalists.

**Monday, April 1, 2019:** Date by which finalists will be given notice of grant recipients.

**Contact:** If interested, please send an email to Eric Blitz ([eric.blitz@njit.edu](mailto:eric.blitz@njit.edu)) and Atam Dhawan ([dhawan@njit.edu](mailto:dhawan@njit.edu)).

Submit e-mail questions and Letters of intent to Dr. Gary A. Goforth, M.D., Vice President for Research Grants, [gagoforth@earthlink.net](mailto:gagoforth@earthlink.net).

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## **Marine Biological Laboratory**

### **Grant Program: Grass Fellowships in Neuroscience**

**Agency:** Marine Biological Laboratory

**Website:** <https://www.grassfoundation.org/fellowship-overview>

**Brief Description:** Grass Fellowships at the [Marine Biological Laboratory](#) (MBL) in Woods Hole, Massachusetts, USA, support investigator-designed, independent research projects by scientists early in their career. Supported approaches include neurophysiology, biophysics, integrative neurobiology, neuroethology, neuroanatomy, neuropharmacology, systems neuroscience, cellular and developmental neurobiology, and computational approaches to neural systems. Grass Fellowships provide research support including laboratory space, animals, [equipment](#) and supplies for one summer at the MBL. Additionally, the investigator, his/her spouse or legal domestic partner, and dependent children are provided housing, a daily meal allowance and round-trip travel to the MBL. The duration of the program is 14 weeks starting Memorial Day Monday

**Eligibility.** The fellowship targets promising new investigators that are at the “critical period”, when the possibility of becoming their own PI during the summer will help to develop the self-confidence and drive to pursue an independent research career. This “critical period” usually takes place during the late postdoctoral years but the program is also appropriate for advanced graduate students and new Assistant Professors.

**Deadline:** Applications for the summer program must be received by 5 December. Applicants must ensure that the completed application and letters of recommendation are submitted by the deadline. Decisions will be announced by the last week in January.

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

Find more details in the [FAQ](#) and many other places on this website or contact Dana Mock-Munoz de Luna, the Grass Fellowship Program Coordinator at MBL, at: [gfp@grassfoundation.org](mailto:gfp@grassfoundation.org); Voice: +1-508.289.7521

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## **Gates Foundation**

### **Grant Program: Grand Challenges Explorations**

**Agency:** Gates Foundation

**Website:** <https://gchg.grandchallenges.org/grant-opportunities>

**Brief Description:** The Bill & Melinda Gates Foundation is inviting proposals for the latest round of the [Grand Challenges Explorations](#). Grants of \$100,000 for 18-months for Phase I Project on:

- [Increasing Demand for Vaccination Services](#)
- [New Approaches for Manufacturing Gut Microbial Biotherapeutics](#)
- [Innovation for WASH in Urban Settings](#)
- [New Approaches for Strategic Prioritization of Agricultural Development Policies](#)
- [Tools and Technologies for Broad-Scale Pest and Disease Surveillance of Crop Plants in Low-Income Countries](#)
- [Innovations Driving Programmatic Performance in Immunization: Service Experience and Data Use + Measurement](#)

**Awards:** \$100,000

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

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## Streamlyne Question of the Week

Question: Can I generate budgets for multiple years from the Year-1 budget in Streamlyne?  
Answer: Yes! You only need to input the Year-1 budget and then click on the “generate all periods” button. Streamlyne will create budget sheets for the remaining periods. You can then go to “summary” under the budget tab to review budget sheets for all periods. You can also change specific budget items that you allocated in Year-1 but you do not want to continue them in the following periods.

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

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## 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](mailto:justin.m.samolewicz@njit.edu); and **Eric Hetherington, Director, Sponsored Research Programs Administration** 973-596-3631; [eric.d.hetherington@njit.edu](mailto: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](mailto:john.p.mccarthy@njit.edu)  
**Cristo Leon**, CSLA Director of Research; (973) 596-6426; [cristo.e.yanezleon@njit.edu](mailto:cristo.e.yanezleon@njit.edu)  
**Sean Andrews**, YWCC Director of Research; (973) 596-5352; [sean.t.andrews@njit.edu](mailto:sean.t.andrews@njit.edu)  
**Iris Pantoja**, NCE, CoAD and MTSM Project Manager; 973-596-4483; [irp3@njit.edu](mailto:irp3@njit.edu)

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## **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](mailto: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](mailto:dhawan@njit.edu).

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