

NJIT Research Newsletter

Issue: ORN-2018-43

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: Materials Innovation Platforms (MIP); Training-based Workforce Development for Advanced Cyberinfrastructure (CyberTraining); EarthCube Office; NSF National Science Foundation Research Traineeship (NRT) Program; CyberCorps® Scholarship for Service (SFS); Methodology, Measurement, and Statistics (MMS); Harnessing the Data Revolution (HDR); Data Science Corps (DSC); Materials Research Science and Engineering Centers (MRSEC); Designing Materials to Revolutionize and Engineer our Future (DMREF); Ceramics (CER); Cybersecurity Innovation for Cyberinfrastructure (CICI); CISE Community Research Infrastructure (CCRI); Navigating the New Arctic (NNA); Enabling Access to Cloud Computing Resources for CISE Research and Education (Cloud Access); NSF/CASIS Collaboration on Tissue Engineering and Mechanobiology on the International Space Station (ISS) to Benefit Life on Earth; EHR Core Research (ECR); STEM Learning and Learning Environments, Broadening Participation, and Workforce Development; NSF Quantum Computing & Information Science Faculty Fellows (QCIS-FF); Partnerships for Innovation (PFI); Scalable Parallelism in the Extreme (SPX); Algorithms for Threat Detection (ATD); Gen-4 Engineering Research Centers (ERC)

NIH: NIH Exploratory/Developmental Research Grant Program (Parent R21); NIH Research Project Grant (Parent R01); Computational Genomics and Data Science Opportunities for Small Business (R43/R44) NIH Small Research Grant Program (Parent R03); BRAIN Initiative: Research Resource Grants for Technology Integration and Dissemination (U24); 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)

Department of Defense/US Army/DARPA/ONR: Photonics in the Package for Extreme Scalability (PIPES); Machine Common Sense (MCS); Accelerated Molecular Discovery (AMD); Electronic Warfare Technology; Microsystems Technology Office (MTO); AFRL/RXC Structural Materials Open BAA;

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: A National Student Design Competition Focusing on People, Prosperity and the Planet - Safe and Sustainable Water Resources

Department of Energy: Science Undergraduate Laboratory Internship (SULI); Transformational Sensing Capabilities for Monitoring the Subsurface; Advanced Systems Integration for Solar Technologies

NASA: Second Heliophysics Space Weather Operations to Research; Use of the NASA Physical Sciences Informatics System - Appendix E National Endowment of Humanities: Humanities Connections Implementation Grants

National Endowment of Humanities: Digital Humanities Advancement Grants; Summer Seminars and Institutes; Collaborative Research Grants

Rotary Foundation: Alzheimer's Research

Special Announcements

President's Forum

Inauguration of the Institute of Space Weather Sciences Research 2018 NJIT Research Institutes, Centers and Laboratories Showcase

November 27, 2018

Ballroom A/B, Campus Center

11.00 AM – 11.15 AM: Program Schedule Announcement

Atam Dhawan, Senior Vice Provost for Research

11.15 AM – 12.15 PM: Research Centers and Institutes e-Poster Session

12.15 PM – 1.00 PM: Lunch and Networking Session

1.00 PM – 1.15 PM: Welcome Remarks: Inauguration Institute of Space Weather Sciences Research

Joel Bloom, President

Vince DeCaprio, Vice Chair, BOT

Fadi Deek, Provost and Senior Executive VP

Atam Dhawan, Senior Vice Provost for Research

1.15 PM – 1.30 PM: Institute Mission and Introduction of Keynote Speakers

Haimin Wang, Director, Institute of Space Weather Sciences Research

1.30 PM – 2.30 PM: President's Forum: Keynote Speaker

Mona Kessel, PhD, Deputy Program Scientist, *Living With a Star (LWS)*; Research Scientist, Heliophysics, NASA GSFC

2.30 PM – 3.00 PM: Concluding Remarks and Networking with e-Poster Session

NJIT Institute for Space Weather Sciences Research: Research in space weather understanding and forecasting is critically important for national security and the economy. This is reflected in

the 2015 National Space Weather Strategy and Action Plan issued by the National Science and Technology Council of the Executive Office of the President. The source of space weather at Earth is activity from the Sun. Integrated research of the solar interior, solar atmosphere, solar eruptions, the propagation of disturbances through the heliosphere to Earth, and subsequent effects at Earth, requires the use of advanced observations, modeling, and big data analysis tools. Such integrated research is essential to investigate this complicated but vitally important science and engineering topic. The establishment of the Institute for Space Weather Sciences (ISWS) is targeted at the organization of coordinated efforts in this strategic research and education direction, using unique capabilities existent at NJIT. The Institute will allow and encourage interdisciplinary and transdisciplinary collaborations to further foster national and international research and academic programs with exceptional synergy to unfold the technical challenges of space weather. The Institute will also educate future scientists and workforce participants on the development of next generation technologies in many areas including solar and terrestrial sciences, telecommunications, and big data analytics and modeling.

This President's forum is a featured event in the Albert Dorman Honors College Colloquium Series and is made possible in part by the generous support of the DeCaprio Family.

Limited Submission Internal Competition for NSF PFI, MRI and NRT Programs

Grant Program: Partnerships for Innovation (PFI)

Agency: National Science Foundation NSF 19-506

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19506/nsf19506.htm>

Brief Description: The Partnerships for Innovation (PFI) Program within the Division of Industrial Innovation and Partnerships (IIP) offers researchers from all disciplines of science and engineering funded by NSF the opportunity to perform translational research and technology development, catalyze partnerships and accelerate the transition of discoveries from the laboratory to the marketplace for societal benefit.

PFI has five broad goals, as set forth by the American Innovation and Competitiveness Act of 2017 ("the Act", [S.3084 — 114th Congress](#); [Sec. 602. Translational Research Grants](#)): (1) identifying and supporting NSF-sponsored research and technologies that have the potential for accelerated commercialization; (2) supporting prior or current NSF-sponsored investigators, institutions of higher education, and non-profit organizations that partner with an institution of higher education in undertaking proof-of-concept work, including the development of technology prototypes that are derived from NSF-sponsored research and have potential market value; (3) promoting sustainable partnerships between NSF-funded institutions, industry, and other organizations within academia and the private sector with the purpose of accelerating the transfer of technology; (4) developing multi-disciplinary innovation ecosystems which involve and are responsive to the specific needs of academia and industry; (5) providing professional development, mentoring, and advice in entrepreneurship, project management, and technology and business development to innovators. This solicitation offers two broad tracks for proposals in pursuit of the aforementioned goals:

The **Technology Translation (PFI-TT) track** offers the opportunity to translate prior NSF-funded research results in any field of science or engineering into technological innovations with promising commercial potential and societal impact. PFI-TT supports commercial potential

demonstration projects for academic research outputs in any NSF-funded science and engineering discipline. This demonstration is achieved through proof-of-concept, prototyping, technology development and/or scale-up work. Concurrently, students and postdoctoral researchers who participate in PFI-TT projects receive education and leadership training in innovation and entrepreneurship. Successful PFI-TT projects generate technology-driven commercialization outcomes that address societal needs.

The **Research Partnerships (PFI-RP) track** seeks to achieve the same goals as the PFI-TT track by supporting instead complex, multi-faceted technology development projects that are typically beyond the scope of a single researcher or institution and require a multi-organizational, interdisciplinary, synergistic collaboration. A PFI-RP project requires the creation of partnerships between academic researchers and third-party organizations such as industry, non-academic research organizations, federal laboratories, public or non-profit technology transfer organizations or other universities. Such partnerships are needed to conduct applied research on a stand-alone larger project toward commercialization and societal impact. In the absence of such synergistic partnership, the project's likelihood for success would be minimal.

The intended outcomes of both PFI-TT and PFI-RP tracks are: a) the commercialization of new intellectual property derived from NSF-funded research outputs; b) the creation of new or broader collaborations with industry (including increased corporate sponsored research); c) the licensing of NSF-funded research outputs to third party corporations or to start-up companies funded by a PFI team; and d) the training of future innovation and entrepreneurship leaders.

Limit on Number of Proposals per Organization: There is no limit on the number of PFI-TT proposals an organization may submit to a deadline of this solicitation. However, an organization may not submit more than one (1) new or resubmitted PFI-RP proposal to a deadline of this solicitation. This eligibility constraint will be strictly enforced. If an organization exceeds this limit, the first PFI-RP proposal received will be accepted, and the remainder will be returned without review. An organization may not receive more than two (2) awards from a submission deadline of this solicitation.

Internal Competition: If you are interested in submitting PFI-RP track proposal, please submit a pre-proposal to your college dean by November 7, 2018 using the following format. Each college dean is requested to forward maximum one pre-proposal with college recommendation to Atam Dhawan, SVPR by November 15, 2018. The selection of one institutional PFI-RP proposal will be announced by November 21, 2018. Institutional pre-proposal should follow the following format:

1. Cover Page: Title and list of all key investigators (including collaborators) with their affiliations and roles
2. Project Summary (max 1 page)
3. Intellectual Merit and Broader Impact (max 1 page)
4. Project Description: Significance, Innovation, Approach and Partnership with Management Plan (max 3 pages)
5. Budget including subcontracts
6. NSF format Biosketch for PI and Co-PIs

Awards: Standard Grants. Anticipated Funding: \$20,000,000; Number of Awards: 55-65

Letter of Intent: Not Required

Proposal Submission Deadline: January 17, 2019; July 10, 2019

Contacts: Jesus V. Soriano, telephone: (703) 292-7795, email: jsoriano@nsf.gov

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 \$100,000¹ 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 [\[3\]](#) 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 \$100,000¹ 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.

Limited Submissions Internal Competitions: NSF NRT Program

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

Agency: National Science Foundation NSF 19-522

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19522/nsf19522.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 science, technology, engineering and mathematics (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 or convergent research areas, through the use of a comprehensive traineeship model that is innovative, evidence-based, and aligned with changing workforce and research needs. Proposals are requested in any interdisciplinary or [convergent](#) research theme of national priority, with special emphasis on the research areas in [NSF's 10 Big Ideas](#). The NSF research Big Ideas are Harnessing the Data Revolution (HDR), The Future of Work at the Human-Technology Frontier (FW-HTF), Navigating the New Arctic (NNA), Windows on the Universe: The Era of Multi-Messenger Astrophysics (WoU), The

Quantum Leap: Leading the Next Quantum Revolution (QL), and Understanding the Rules of Life: Predicting Phenotype (URoL).

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 Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES) to develop STEM talent from all sectors and groups in our society (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 organizational eligibility limit (beyond the first two submissions based on timestamp) will be returned without review regardless of the organization's role (lead organization, non-lead collaborative, or subawardee) in the returned proposal. Only US IHEs are eligible to submit as a lead or non-lead organization.

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:** \$45,000,000

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 25, 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

- Tara L. Smith, telephone: (703) 292-7239, email: tsmith@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-INFEWS:" 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 INFEWS would have a title beginning “Collaborative Research: NRT-INFEWS:”

- 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)

Recent Research Grant and Contract Awards

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

PI: Zhi Wei (PI)

Department: Computer Science

Grant/Contract Project Title: KPI-Driven Content Understanding and Generation With Applications to Digital Marketing

Funding Agency: Adobe Systems Incorporated

Duration: 11/01/18-11/31/21

PI: Matthew Bandelt (PI), Matthew Adams (Co-PI), Bruno Goncalves da Silva (co-PI) and Taha Marhaba (Co-PI)

Department: Civil and Environmental Engineering

Grant/Contract Project Title: Sustainability and Resiliency of Concrete Rapid Repairs Utilizing Advanced Cementitious Materials - Freeze/Thaw Loads

Funding Agency: US Department of Transportation

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

PI: Matthew Bandelt (PI) and Matthew Adams (Co-PI)

Department: Civil and Environmental Engineering

Grant/Contract Project Title: The Long-Term Infrastructure Performance (LTIP) Team

Funding Agency: US Department of Transportation

Duration: 10/01/18-08/31/20

PI: Bipin Rajendran (PI)
Department: Electrical and Computer Engineering
Grant/Contract Project Title: Non-von-Neumann Cognitive Hardware with Emerging NVMs Featuring On-Chip Learning-NJIT
Funding Agency: Semiconductor Research Corporation
Duration: 12/01/16-11/30/19

PI: Christine Liaukus (PI)
Department: Center for Building Knowledge
Grant/Contract Project Title: Energy Efficient Unit Turnover Project
Funding Agency: Enterprise Community Partners, Inc.
Duration: 01/01/18-12/31/18

PI: Shahriar Afkhami (PI)
Department: Mathematical Sciences
Grant/Contract Project Title: The Study of Hele-Shaw Viscoelastic Two-Phase Flows
Funding Agency: American Chemical Society
Duration: 01/01/19-12/31/19

PI: Michel Boufadel (PI)
Department: Center for Natural Resources
Grant/Contract Project Title: Bench Scale Treatability Study
Funding Agency: Langan Engineering
Duration: 08/16/18-09/21/18

In the News...

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

Student and Faculty Research Opportunities: Applications are due January 10, 2019 for both [Science Undergraduate Laboratory Internships \(SULI\)](#) and the [Visiting Faculty Program \(VFP\)](#) sponsored by the Department of Energy. SULI students perform research at one of 17 DOE labs under the guidance of laboratory staff scientists or engineers. In VFP, university or college faculty members "collaborate with DOE laboratory research staff on a project of mutual interest." The Science Undergraduate Laboratory Internship (SULI) program encourages undergraduate students and recent graduates to pursue science, technology, engineering, and mathematics (STEM) careers by providing research experiences at the Department of Energy (DOE) laboratories. Selected students participate as interns appointed at one of [17 participating DOE laboratories/facilities](#). They perform research, under the guidance of laboratory staff scientists or engineers, on projects supporting the DOE mission.

CISE Community Research Infrastructure (CCRI): These represent the high end of infrastructure projects to be funded by NSF's Computer and Information Science and Engineering (CISE) directorate, which will also fund "medium" ensembles and planning. The infrastructure is intended to "support diverse communities of CISE researchers pursuing focused research agendas (and)

developing the accompanying user services and engagement needed to attract, nurture, and grow a robust research community that is actively involved in determining directions for the infrastructure as well as management of the infrastructure." For more information, please see the RFP details in the Grant Opportunity section or <https://www.nsf.gov/pubs/2019/nsf19512/nsf19512.htm?org=NSF>

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>.

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>

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>

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](#)

Webinar and Events

Event: NSF SBIR/STTR Webinar Series

Sponsor: NSF

When: November 13, 2018; 2.00 PM – 4.00 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=296946&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 November 13 webinar.](#)

Event: Partnerships for Innovation Webina

Sponsor: NSF

When: November 15, 2018; 2.00 PM – 4.00 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=297046&org=NSF

Brief Description: Scientists and engineers increase the impact of their NSF-funded research discoveries by developing their technology into a prototype or proof-of-concept through the Partnerships for Innovation (PFI) program, one of the National Science Foundation’s technology translation programs. The PFI program selects projects that will transition the technology out of the lab and into the market for societal benefit. Only NSF-funded research and researchers who either have received NSF funding in the last seven years or have participated in NSF Innovation Corps (I-Corps™) Teams program in the last four years are eligible. Join this webinar to learn more about the program and how to apply.

To Register: [Register for the November 15 webinar on WebEx.](#)

Event: Joint DMS/NLM Initiative on Generalizable Data Science Methods for Biomedical Research Webinar

Sponsor: NSF

When: November 19, 2018; 1.00 PM – 3.00 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=297151&org=NSF

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. This webinar will cover the solicitation and submission requirements. There will be a question and answer session following the discussion.

To Register: Go to

<https://nsf2.webex.com/nsf2/onstage/g.php?MTID=e3da140a41e2ae38ad7e873d2969929cc>

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

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.

November 13, 2018: *Why Machine Learning Works*

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

November 15, 2018, 2:00 p.m., Room E3410

"Does Data Size Matter? Absolutely, But Maybe Not in Ways You Expect ..."

Prof. Xiao-Li Meng (Harvard University)

December 11, 2018: *Mathematics of Epidemics*

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

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

Grant Opportunities

National Science Foundation

Grant Program: Materials Innovation Platforms (MIP)

Agency: National Science Foundation NSF 19-526

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19526/nsf19526.htm>

Brief Description: Materials Innovation Platforms (MIP) is a mid-scale infrastructure program in the Division of Materials Research (DMR) designed to accelerate advances in materials research. MIPs respond to the increasing complexity of materials research that requires close collaboration of interdisciplinary and transdisciplinary teams and access to cutting edge tools. These tools in a user facility benefit both a user program and in-house research, which focus on addressing grand challenges of fundamental science and meet national needs. MIPs embrace the paradigm set forth by the Materials Genome Initiative (MGI), which strives to "discover, manufacture, and deploy advanced materials twice as fast, at a fraction of the cost," and conduct research through iterative "closed-loop" efforts among the areas of materials synthesis/processing, materials characterization, and theory/modeling/simulation. In addition, they are expected to engage the emerging field of data science in materials research. Each MIP is a scientific ecosystem, which includes in-house research scientists, external users and other contributors who, collectively, form a community of practitioners and share tools, codes, samples, data and know-how. The knowledge sharing is designed to strengthen collaborations among scientists and enable them to work in new ways, fostering new modalities of research and education/training, for the purpose of accelerating discovery and development of new materials and novel materials phenomena/properties, as well as fostering their eventual deployment.

The scientific focus of the MIP program is subject to change from competition to competition. The first MIP competition in 2015 focused on developing new bulk and thin-film crystalline hard materials. **The second MIP competition, in 2019, focuses on the convergence of materials research with biological sciences for developing new materials.**

Limit on Number of Proposals per Organization: 1

One (1) per organization as lead institution. Potential PIs are advised to contact their Sponsored Projects Office regarding processes used to select proposals for submission.

The institutions that were awarded a MIP in the 2015 competition as the lead institution are not eligible to submit a MIP proposal as a lead institution in the 2019 competition.

If you are interested in submitting a proposal, please submit a pre-proposal with list of all key investigators, extended summary, intellectual merit, broader impact, PI's NSF format biosketch and budget to Atam Dhawan at dhawan@njit.edu with a copy of dean of the respective college(s) by **December 1, 2018**. In case of multiple pre-proposal, the institutional response on the selection of the proposal will be provided by December 7, 2018.

Awards: Cooperative Agreement. Anticipated Funding: \$12,000,000

Letter of Intent: Not Required

Proposal Submission Deadline: February 04, 2019

Contacts: Z Charles Ying, Lead MIP Program Director, telephone: (703) 292-8428, email: cying@nsf.gov

- Guebre X. Tessema, Program Director, telephone: (703) 292-4935, email: gtessema@nsf.gov
 - Leonard Spinu, Program Director, telephone: (703) 292-2665, email: lspinu@nsf.gov
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Grant Program: Training-based Workforce Development for Advanced Cyberinfrastructure (CyberTraining)

Agency: National Science Foundation NSF 19-524

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19524/nsf19524.htm>

Brief Description: This program seeks to prepare, nurture, and grow the national scientific *research* workforce for *creating, utilizing, and supporting* advanced cyberinfrastructure (CI) to enable and potentially transform fundamental science and engineering research and contribute to the Nation's overall economic competitiveness and security. The goals of this solicitation are to **(i) ensure broad adoption of CI tools, methods, and resources by the research community in order to catalyze major research advances and to enhance researchers' abilities to lead the development of new CI; and (ii) integrate core literacy and discipline-appropriate advanced skills in advanced CI as well as computational and data-driven science and engineering into the Nation's educational curriculum/instructional material fabric spanning undergraduate and graduate courses for advancing fundamental research.** *Pilot and Implementation* projects may target one or both of the solicitation goals, while *Large-scale Project Conceptualization* projects must address both goals. For the purpose of this solicitation, advanced CI is broadly defined as the set of resources, tools, methods, and services for advanced computation, large-scale data handling and analytics, and networking and security for large-scale systems that collectively enable potentially transformative fundamental research.

This solicitation calls for innovative, scalable training, education, and curriculum/instructional materials—targeting one or both of the solicitation goals—to address the emerging needs and unresolved bottlenecks in scientific and engineering research workforce development, from the postsecondary level to active researchers. The funded activities, spanning targeted, multidisciplinary communities, will lead to transformative changes in the state of research workforce preparedness for advanced CI-enabled research in the short- and long-terms. As part of this investment, this solicitation also seeks to broaden CI access and adoption by (i) increasing or deepening accessibility of methods and resources of advanced CI and of computational and data-driven science and engineering by a wide range of *scientific disciplines* and *institutions* with lower levels of CI adoption to date; and (ii) harnessing the capabilities of larger segments of diverse underrepresented groups. Proposals from, and in partnership with, the aforementioned communities are especially encouraged.

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

Letter of Intent: Not Required

Proposal Submission Deadline: February 06, 2019

Contacts: Sushil K. Prasad, CISE/OAC, telephone: (703) 292-5059, email: sprasad@nsf.gov

- Almadena Y. Chtchelkanova, CISE/CCF, telephone: (703) 292-8910, email: achtchel@nsf.gov
 - Victor P. Piotrowski, EHR/DGE, telephone: (703) 292-8670, email: vp Piotrow@nsf.gov
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Grant Program: EarthCube Office

Science Office for a Community-Driven Data and Knowledge Environment for the Geosciences)

Agency: National Science Foundation NSF 19-523

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19523/nsf19523.htm>

Brief Description: EarthCube is a community-driven activity to transform the conduct of geosciences research and education, sponsored through a partnership between the NSF Directorate of Geosciences and the Office of Advanced Cyberinfrastructure in the Directorate for Computer and Information Science and Engineering.

EarthCube aims to accelerate the ability of the geosciences community to understand and predict the Earth system by enabling access to geosciences data. EarthCube will require a long-term dialog between NSF and the interested scientific communities to develop new modes for sharing data that is thoughtfully and systematically built to meet the current and future needs of geoscientists.

This solicitation seeks the services of a qualified organization to act as the EarthCube Office. This organization will provide the services required to maintain and manage the community governance structures and to carry out activities consistent with EarthCube priorities as guided by community governance. The award, to be administered as a Cooperative Agreement, is intended to cover an initial 3-year period.

Awards: Cooperative Agreements. Anticipated Funding: \$2,000,000

Letter of Intent: Not Required

Proposal Submission Deadline: February 11, 2019

Contacts: Eva Zanzerkia, Directorate for Geosciences, telephone: (703) 292-4734, email: ezanzerk@nsf.gov

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

Agency: National Science Foundation NSF 19-522

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19522/nsf19522.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 science, technology, engineering and mathematics (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 or convergent research areas, through the use of a comprehensive traineeship model that is innovative, evidence-based, and aligned with changing workforce and research needs. Proposals are requested in any interdisciplinary or [convergent](#) research theme of national priority, with special emphasis on the research areas in [NSF's 10 Big Ideas](#). The NSF research Big Ideas are Harnessing the Data Revolution (HDR), The Future of Work at the Human-Technology Frontier (FW-HTF), Navigating the New Arctic (NNA), Windows on the Universe: The Era of Multi-Messenger Astrophysics (WoU), The Quantum Leap: Leading the Next Quantum Revolution (QL), and Understanding the Rules of Life: Predicting Phenotype (URoL).

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 Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES) to develop STEM talent from all sectors and groups in our society (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 organizational eligibility limit (beyond the first two submissions based on timestamp) will be returned without review regardless of the organization's role (lead organization, non-lead collaborative, or subawardee) in the returned proposal. Only US IHEs are eligible to submit as a lead or non-lead organization.

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:** \$45,000,000

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 25, 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

- Tara L. Smith, telephone: (703) 292-7239, email: tsmith@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. Dens 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)

Grant Program: CyberCorps® Scholarship for Service (SFS)

Agency: National Science Foundation NSF 19-521

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19521/nsf19521.htm>

Brief Description: Cyberspace has transformed the daily lives of people. Society's overwhelming reliance on cyberspace, however, has exposed its fragility and vulnerabilities: corporations, agencies, national infrastructure and individuals continue to suffer cyber-attacks. Achieving a truly secure cyberspace requires addressing both challenging scientific and engineering problems involving many components of a system, and vulnerabilities that stem from human behaviors and choices. Examining the fundamentals of security and privacy as a multidisciplinary subject can lead to fundamentally new ways to design, build and operate cyber systems, protect existing infrastructure, and motivate and educate individuals about cybersecurity. The Cybersecurity Enhancement Act of 2014, as amended by the National Defense Authorization Act for FY 2018, authorizes the National Science Foundation, in coordination with the Office of Personnel Management and the Department of Homeland Security, to offer a scholarship program to recruit and train the next generation of information technology professionals, industry control system security professionals and security managers to meet the needs of the cybersecurity mission for federal, state, local, and tribal governments.

The goals of the CyberCorps®: Scholarship for Service (SFS) program are aligned with the [U.S. National Cyber Strategy](#) to develop a superior cybersecurity workforce. The SFS program welcomes proposals to establish or to continue scholarship programs in cybersecurity. All scholarship recipients must work after graduation for a federal, state, local, or tribal Government organization in a position related to cybersecurity for a period equal to the length of the scholarship. A proposing institution must provide clearly documented evidence of a strong existing academic program in cybersecurity. Such evidence can include designation by the National Security Agency and the Department of Homeland Security as a Center of Academic Excellence in Cyber Defense (CAE-CD), in Cyber Operations (CAE-CO) or in Research (CAE-R); or equivalent evidence documenting a strong program in cybersecurity. The SFS program also supports efforts leading to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals. Funding opportunities in this area are provided via the [Secure and Trustworthy Cyberspace - Education Designation \(SaTC-EDU\)](#) and other programs (see the section "Increasing National Capacity in Cybersecurity Education" for more details.).

Awards: Standard Grants. Anticipated Funding: \$15,000,000

Letter of Intent: Not Required

Proposal Submission Deadline: February 04, 2019

Contacts: Victor P. Piotrowski, Lead Program Director, telephone: (703) 292-5141, email: vpotrow@nsf.gov

- Chun-Hsi (Vincent) Huang, Program Director, telephone: (703) 292-7877, email: chuang@nsf.gov
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Grant Program: Methodology, Measurement, and Statistics (MMS)

Agency: National Science Foundation NSF 19-520

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19520/nsf19520.htm>

Brief Description: The Methodology, Measurement, and Statistics (MMS) Program is an interdisciplinary program in the Directorate for Social, Behavioral, and Economic Sciences that supports the development of innovative analytical and statistical methods and models for those sciences. MMS seeks proposals that are methodologically innovative, grounded in theory, and have potential utility for multiple fields within the social, behavioral, and economic sciences. As part of its larger portfolio, the MMS Program partners with a consortium of federal statistical agencies to support research proposals that further the production and use of official statistics.

The MMS Program provides support through a number of different funding mechanisms. The following mechanisms are addressed in this solicitation:

- Regular Research Awards
- Awards for conferences and community-development activities
- Doctoral Dissertation Research Improvement (DDRI) Grants
- Research Experience for Undergraduates (REU) Supplements

MMS also supports Faculty Early Career Development (CAREER) awards. Please see the [CAREER Program Web Site](#) for more information about this activity.

Awards: Standard Grants. Anticipated Funding: \$3,760,000

Letter of Intent: Not Required

Proposal Submission Deadline: January 31, 2019; August 29, 2019

Contacts: Cheryl L. Eavey - Program Director, telephone: (703) 292-7269, email: ceavey@nsf.gov

- Liana A. Denola - Social Scientist, telephone: (703) 292-2675, email: ldenola@nsf.gov
- Robbie W. Brown - Program Specialist, telephone: (703) 292-7264, email: rbrown@nsf.gov

Grant Program: Harnessing the Data Revolution (HDR): Data Science Corps (DSC)

Building Capacity for HDR

Agency: National Science Foundation NSF 19-518

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19518/nsf19518.htm>

Brief Description: In 2016, the National Science Foundation (NSF) 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 (see https://www.nsf.gov/news/special_reports/big_ideas/index.jsp). The Big Ideas represent unique opportunities to position our Nation at the cutting edge of global science and engineering leadership by bringing together diverse disciplinary perspectives to support convergence research. As such, when responding to this solicitation, even though proposals must be submitted to **the Division of Information and Intelligent Systems (IIS) within the Directorate for Computer and Information Science and Engineering (CISE)**, once received, the proposals will be managed by a cross-disciplinary team of NSF Program Directors.

NSF’s [Harnessing the Data Revolution \(HDR\)](#) Big Idea 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.

The *Data Science Corps* is one of the components of the HDR ecosystem, focusing on building capacity for harnessing the data revolution at the local, state, national, and international levels to help unleash the power of data in the service of science and society. The *Data Science Corps* will provide practical experiences, teach new skills, and offer teaching opportunities, in a variety of settings, to data scientists and data science students. It will also strive to promote data literacy and provide basic training in data science to the existing workforce across communities.

As a first step in establishing the *Data Science Corps*, this solicitation focuses specifically on enabling participation by undergraduate students in the *Data Science Corps*, by supporting student stipends for participation in data science projects and supporting integration of real-world data science projects into classroom instruction.

Awards: Standard Grants. Anticipated Funding: \$10,000,000

Limit on Number of Proposals per Organization: 1

NJIT Institutional Internal Review: Only one proposal is permitted per organization. If you are interested in submitting a proposal, please submit a pre-proposal with list of all key investigators, extended summary, intellectual merit, broader impact, PI's NSF format biosketch and budget to Atam Dhawan at dhawan@njit.edu with a copy of dean of the respective college(s) by **December 1, 2018**. In case of multiple pre-proposal, the institutional response on the selection of the proposal will be provided by December 7, 2018.

Letter of Intent: Not Required

Proposal Submission Deadline: January 28, 2019 - February 04, 2019

Contacts: Aidong Zhang, Program Director, CISE/IIS, telephone: (703) 292-5311, email: azhang@nsf.gov

- Stephanie August, Program Director, EHR/DUE, telephone: (703) 292-5128, email: saugust@nsf.gov

- Nandini Kannan, Program Director, MPS/DMS, telephone: (703) 292-8104, email: nakannan@nsf.gov

Grant Program: Materials Research Science and Engineering Centers (MRSEC)

Agency: National Science Foundation NSF 19-517

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19517/nsf19517.htm>

Brief Description: The Materials Research Science and Engineering Centers (MRSECs) program provides sustained support of interdisciplinary materials research and education of the highest quality while addressing fundamental problems in science and engineering. Each MRSEC addresses research of a scope and complexity requiring the scale, synergy, and multidisciplinary provided by a campus-based research center. The MRSECs support materials research infrastructure in the United States, promote active collaboration between universities and other sectors, including industry and international organizations, and contribute to the development of a national network of university-based centers in materials research, education, and facilities. A MRSEC may be located at a single institution, or may involve multiple institutions in partnership, and is composed of up to three Interdisciplinary Research Groups, IRGs, each addressing a fundamental materials science topic aligned with the Division of Materials Research, DMR.

The nature of materials research demands mechanisms to support interdisciplinary collaboration for the conception and execution of ideas, and for developing the capabilities to sustain our nation's competitiveness in the production of new technology and products based on advances in materials research. Materials Research Science and Engineering Centers (MRSECs) are expected to contribute to

the development of a diverse and globally competitive scientific workforce for increased economic competitiveness of the United States.

MRSECs support multidisciplinary materials research and education of the highest quality while addressing fundamental problems in materials science of a scope and complexity requiring the scale and synergy provided by a campus-based research center. MRSECs require outstanding research quality, intellectual breadth, multidisciplinary, flexibility in responding to new research opportunities, support for research infrastructure, and foster the integration of research and education in the materials field. They are expected to have strong links to industry and other sectors, as appropriate, and to contribute to the development of a national network of university-based centers in materials research.

Specifically, it should be stressed that DMR plays an important role in the following NSF Big Ideas:

- *Harnessing the Data Revolution;*
- *The Future of Work at the Human-Technology Frontier;*
- *Understanding the Rules of Life;*
- *The Quantum Leap.*

In addition, potential research topics to broaden the current MRSEC portfolio include, but are not limited to:

- Use of supervised and unsupervised *Machine Learning* addressing materials science complex problems, and in particular as applied to traditional materials science problems in *ceramics, metals, metallic alloys* and others.

Finally, a few additional strategic research areas of DMR interest have also been identified:

- *Synthetic Materials Biology:* in such an effort biologists and system engineers work with materials scientists to identify materials challenges hindering advancements of Synthetic Biology, as well as to generate new Synthetic Biology approaches to materials development i.e., "Materials Biology";
- *Structural Materials under Extreme Conditions:* this effort addresses fundamental challenges in ceramic, metallic, and polymeric materials and their composites for applications under extreme conditions;
- *Recyclable Plastics and Alternative Materials for Sustainable Development:* these efforts could include the development of intrinsically recyclable polymers, a better understanding of mechanical properties of recycled plastic products, strategies to improve the properties of recycled plastics, and materials alternatives for plastics.

A MRSEC may address any area of research supported by the NSF Division of Materials Research which include 8 programs (known as Topical Materials Research Programs, TMRP): Biomaterials (BMAT), Ceramics (CER), Condensed Matter Physics (CMP), Condensed Matter and Materials Theory (CMMT), Electronic and Photonic Materials (EPM), Metals and Metallic Nanostructures (MMN), Polymers (POL), and Solid State and Materials Chemistry (SSMC). For a detailed description of the research supported by the 8 TMRP visit <https://www.nsf.gov/materials>. IRGs not well aligned with DMR supported research will not be reviewed. Proposers are strongly encouraged to contact the Program Director listed in this solicitation to ascertain that the planned research fits the scope of the DMR role in the suggested topical areas. IRGs not appropriate for consideration by DMR may be returned without review.

In addition to research excellence, these centers provide the infrastructure of equipment, education and outreach needed to ensure that the program as a whole meets its objectives and provides for effective coordination within and beyond the center community. Centers are required to contribute to the network addressing common problems and applications. Center shared experimental and computational facilities constitute the Materials Research Facility Network, a network of facilities that help to maintain and advance materials research infrastructure in the United States. More information about the network may be found at <http://www.mrfn.org>.

Awards: Cooperative Agreement. Anticipated Funding: \$31,500,000

Limit on Number of Proposals per Organization: 1

NJIT Institutional Internal Review: Only one proposal is permitted per organization. If you are interested in submitting a proposal, please submit a pre-proposal with list of all key investigators, extended summary, intellectual merit, broader impact, PI's NSF format biosketch and budget to Atam Dhawan at dhawan@njit.edu with a copy of dean of the respective college(s) by **January 15, 2019**. In case of multiple pre-proposal, the institutional response on the selection of the proposal will be provided by February 1, 2019.

Preliminary Proposal Deadline: June 24, 2019

Proposal Submission Deadline: November 26, 2019

Contacts: Daniele Finotello, 1065 N, telephone: (703) 292-4676, email: dfinotel@nsf.gov

Grant Program: Designing Materials to Revolutionize and Engineer our Future (DMREF)

Agency: National Science Foundation NSF 19-516

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19516/nsf19516.htm>

Brief Description: DMREF is the primary program by which NSF participates in the [Materials Genome Initiative \(MGI\) for Global Competitiveness](#). MGI recognizes the importance of materials science and engineering to the well-being and advancement of society and aims to "deploy advanced materials at least twice as fast as possible today, at a fraction of the cost." MGI integrates materials discovery, development, property optimization, and systems design with a shared computational framework. This framework facilitates collaboration and coordination of research activities, analytical tools, experimental results, and critical evaluation in pursuit of the MGI goals. Consistent with the [MGI Strategic Plan](#), DMREF highlights four sets of goals:

- Leading a culture shift in materials science and engineering research to encourage and facilitate an integrated team approach;
- Integrating experimentation, computation, and theory and equipping the materials science and engineering communities with advanced tools and techniques;
- Making digital data accessible, findable, and useful to the community; and
- Creating a world-class materials science and engineering workforce that is trained for careers in academia or industry.

Accordingly, DMREF will support activities that significantly accelerate materials discovery and/or development by building the fundamental knowledge base needed to design and make materials and/or devices with specific and desired functions or properties. This will be accomplished through forming interdisciplinary teams of researchers working synergistically in a "closed loop" fashion, building a vibrant research community, leveraging data science, providing ready access to materials data, and educating the future MGI workforce. Specifically, achieving this goal will involve modeling, analysis, and computational simulations, validated and verified through sample preparation, characterization, and/or device demonstration.

Computational efforts will begin at the smallest appropriate length scale, such as electronic, atomic, molecular, nano-, micro-, and meso-scale, appropriately informed by data or models to provide predictive or fundamental insight that will work effectively in concert with data-centric, experimental, and theoretical efforts to discover new materials, new states of matter, or advance understanding of materials properties and phenomena and their control through structure, applied fields, or other means. Computational efforts may include models that apply across or at multiple scales of length or time, and may include different chemistry or physics models to capture specific processes or phenomena. Creativity and innovation are encouraged to obtain the maximum predictive power or insight through computation, data-centric methods, and theory to achieve the goals of DMREF.

DMREF will enable the development of new data analytic tools and statistical algorithms; advanced simulations of material properties in conjunction with new device functionality; advances in

predictive modeling that leverage machine learning, artificial intelligence, data mining, and sparse approximation; data infrastructure that is accessible, extensible, scalable, and sustainable; the development, maintenance, and deployment of reliable, interoperable, and reusable software for the next-generation design of materials; and new collaborative capabilities for managing large, complex, heterogeneous, distributed data supporting materials design, synthesis, and longitudinal study. Incorporation of cyberinfrastructure developed through NSF investments including the [OpenKIM](#) Knowledge-base of Inter-atomic Models, Software Infrastructure for Sustained Innovation ([SI2](#)), Data Infrastructure Building Blocks ([DIBBs](#)), and Cyberinfrastructure for Sustained Scientific Innovation ([CSSI](#)), is encouraged where appropriate.

Awards: The multidisciplinary character of this effort dictates the involvement of programs in the NSF Directorates of Mathematical and Physical Sciences, Engineering, and Computer and Information Science and Engineering. Awards are expected to range from \$1,000,000 – \$1,750,000 over four years. To cover the breadth of this endeavor, it is expected that proposed projects will be directed by a team of at least two Senior Personnel with complementary expertise. **Anticipated Funding Amount:** \$36,000,000

Letter of Intent: Not Required

Proposal Submission Deadline: January 28, 2019 - February 04, 2019

Contacts: John A. Schlueter, Team Lead, MPS/DMR, telephone: (703) 292-7766, email: jschluet@nsf.gov

- Micah Beck, CISE/OAC, telephone: (703) 292-2932, email: mbeck@nsf.gov
 - Marian Bocea, MPS/DMS, telephone: (703) 292-2595, email: mbocea@nsf.gov
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Grant Program: Ceramics (CER)

Agency: National Science Foundation NSF 19-515

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19515/nsf19515.htm>

Brief Description: This program supports fundamental scientific research in ceramics (e.g., oxides, carbides, nitrides and borides), glass-ceramics, inorganic glasses, ceramic-based composites and inorganic carbon-based materials. Projects should be centered on experiments; inclusion of computational and theory components are encouraged. The objective of the program is to increase fundamental understanding and to develop predictive capabilities for relating synthesis, processing, and microstructure of these materials to their properties and ultimate performance in various environments and applications. Research to enhance or enable the discovery or creation of new ceramic materials is welcome. Development of new experimental techniques or novel approaches to carry out projects is encouraged. Topics supported include basic processes and mechanisms associated with nucleation and growth of thin films; bulk crystal growth; phase transformations and equilibria; morphology; surface modification; corrosion, interfaces and grain boundary structure; and defects.

Awards: Standard Grants. Anticipated Funding: \$10,000,000

Letter of Intent: Not Required

Proposal Submission Deadline: Proposals Accepted Anytime

Contacts: Dr. Lynnette D. Madsen, Program Director (CER), telephone: (703) 292-4936, fax: (703) 292-9035, email: lmadsen@nsf.gov

Grant Program: Cybersecurity Innovation for Cyberinfrastructure (CICI)

Agency: National Science Foundation NSF 19-514

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19514/nsf19514.htm>

Brief Description: The objective of the Cybersecurity Innovation for Cyberinfrastructure (CICI) program is to develop, deploy and integrate security solutions that benefit the scientific community by ensuring

the integrity, resilience and reliability of the end-to-end scientific workflow. CICI seeks three categories of projects:

1. **Secure Scientific Cyberinfrastructure (SSC):** These awards seek to secure the scientific workflow by encouraging novel and trustworthy architectural and design approaches, models and frameworks for the creation of a holistic, integrated security environment that spans the entire scientific CI ecosystem.
2. **Research Data Protection (RDP):** These awards provide solutions that both ensure the provenance of research data and reduce the complexity of protecting research data sets regardless of funding source.
3. **Cybersecurity Center of Excellence (CCoE):** This award seeks to provide the NSF community with a centralized resource of expertise and leadership in trustworthy cyberinfrastructure.

Awards: Standard Grants. Anticipated Funding: \$19,000,000

Letter of Intent: Not Required

Proposal Submission Deadline: January 23, 2019

Contacts: Kevin Thompson, Program Director, CISE/OAC, telephone: (703) 292-4220, email: kthomps@nsf.gov

Grant Program: CISE Community Research Infrastructure (CCRI)

Agency: National Science Foundation NSF 19-512

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19512/nsf19512.htm>

Brief Description: The Computer and Information Science and Engineering (CISE) Community Research Infrastructure (CCRI) program drives discovery and learning in the core CISE disciplines of the three participating divisions [(Computing and Communication Foundations (CCF), Computer and Network Systems (CNS), and Information and Intelligent Systems (IIS)] by funding the creation and enhancement of world-class research infrastructure. This research infrastructure will specifically support diverse communities of CISE researchers pursuing **focused research agendas in computer and information science and engineering**. This support involves developing the accompanying user services and engagement needed to attract, nurture, and grow a robust research community that is actively involved in determining directions for the infrastructure as well as management of the infrastructure. This should lead to infrastructure that can be sustained through community involvement and community leadership, and that will enable advances not possible with existing research infrastructure. Further, through the CCRI program, CISE seeks to ensure that researchers from a diverse range of academic institutions, including minority-serving and predominantly undergraduate institutions, as well as researchers from non-profit, non-academic organizations, have access to such infrastructure.

The CCRI program supports two classes of awards:

- **New** awards support the creation of new CISE community research infrastructure with integrated tools, resources, user services, and community outreach to enable innovative CISE research opportunities to advance the frontiers of the CISE core research areas. The **New** award class includes **Grand Ensemble (Grand)**, **Medium Ensemble (Medium)**, and **Planning** awards.
- **Enhance/sustain (ENS)** awards support the **enhancement** and **sustainment** of an existing CISE community infrastructure to enable world-class CISE research opportunities for broad-based communities of CISE researchers that extend well beyond the awardee organization(s).

Each CCRI **New** or **ENS** award may support the operation of such infrastructure, ensuring that the awardee organization(s) is (are) well positioned to provide a high quality of service to CISE community researchers expected to use the infrastructure to realize their research goals.

Awards: Standard Grants. Anticipated Funding: \$25,000,000

Letter of Intent: January 08, 2019; November 12, 2019

Proposal Submission Deadline: February 20, 2019; January 09, 2020

Contacts: Harriet Taylor, Lead Program Director, CNS, telephone: (703) 292-8950, email: htaylor@nsf.gov

- Sankar Basu, Program Director, CCF, telephone: (703) 292-7843, email: sbasu@nsf.gov
 - Mimi McClure, Associate Program Director, CNS, telephone: (703) 292-8950, email: mmcclure@nsf.gov
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Grant Program: Navigating the New Arctic (NNA)

Agency: National Science Foundation NSF 19-511

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19511/nsf19511.htm>

Brief Description: In 2016, the National Science Foundation (NSF) 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](#). The Big Ideas represent unique opportunities to position our Nation at the cutting edge of global science and engineering leadership by bringing together diverse disciplinary perspectives to support convergence research. As such, when responding to this solicitation, even though proposals must be submitted to the Directorate for Geosciences, once received, the proposals will be managed by a cross-disciplinary team of NSF Program Directors.

Arctic temperatures are warming faster than nearly everywhere else on Earth, with some models predicting that continued warming could produce an ice-free Arctic Ocean by mid-century. The rapid and wide-scale changes occurring in response to this warming portend new opportunities and unprecedented risks to natural systems; social and cultural systems; economic, political and legal systems; and built environments of the Arctic and across the globe. The lack of scientific observations and the prevalence of interdependent social, natural, and built systems in the Arctic make it challenging to predict the region's future. Understanding and adapting to a changing Arctic will require creative new directions for Arctic-specific research, education, workforce development, and leveraging of science, engineering, and technology advances from outside the Arctic.

Navigating the New Arctic (NNA), one of NSF's 10 Big Ideas, embodies the Foundation's forward-looking response to these profound challenges. NNA seeks innovations in Arctic observational networks and fundamental convergence research across the social, natural, environmental, and computing and information sciences, and engineering that address the intersection of natural, social, and built systems. NNA promotes initiatives that empower new research communities, diversifies the next generation of Arctic researchers, integrates the co-production of knowledge, and engages partnerships, particularly among international stakeholders. NNA also strongly encourages projects that include or focus on advancing STEM education and workforce development objectives on the scientific themes.

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

- Track 1: Research Grants with a budget of no more than \$3,000,000 and a maximum duration of 5 years.
- Track 2: Planning Grants with a total budget of no more than \$250,000 and a maximum duration of 24 months.

Letter of Intent: Not Required

Proposal Submission Deadline: February 14, 2019

Contacts: NNA Working Group, telephone: (703) 292-8030, email: nna@nsf.gov

Grant Program: Enabling Access to Cloud Computing Resources for CISE Research and Education (Cloud Access)

Agency: National Science Foundation NSF 19-510

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19510/nsf19510.htm>

Brief Description: Increasingly, data- and compute-intensive research and education efforts are benefiting from access to cloud computing platforms, which provide robust, agile, reliable, and scalable infrastructure. To better support this growing use of cloud computing resources, the National Science Foundation's (NSF) Directorate for Computer and Information Science and Engineering (CISE) seeks to fund an entity that can serve as a principal interface between the CISE research and education community and public cloud computing providers. Through this solicitation, NSF will support an entity that will have multiple responsibilities, including: 1) establishing partnerships with the various public cloud computing providers; 2) assisting NSF in allocating cloud computing resources to qualifying CISE-funded projects; 3) managing cloud computing accounts and resources allocated to individual CISE projects; 4) providing user training and other support to CISE researchers and educators using cloud computing in their work; and 5) providing strategic technical guidance for CISE researchers and educators interested in using public cloud computing platforms.

Awards: Cooperative Agreement (1 award); Anticipated Funding: \$5,000,000

Letter of Intent: December 20, 2018

Proposal Submission Deadline: February 19, 2019

Limit on Number of Proposals per Organization: 1 (please contact Atam Dhawan, SVPR at dhawan@njit.edu if you would like to submit a proposal)

Contacts: Deepankar (Deep) Medhi, telephone: (703) 292-8950, email: dmedhi@nsf.gov

- Kevin Thompson, telephone: (703) 292-4220, email: kthompso@nsf.gov
-

Grant Program: NSF/CASIS Collaboration on Tissue Engineering and Mechanobiology on the International Space Station (ISS) to Benefit Life on Earth

Agency: National Science Foundation NSF 19-509

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19509/nsf19509.htm>

Brief Description: The Divisions of Chemical, Bioengineering and Environmental Transport (CBET) and Civil, Mechanical, and Manufacturing Infrastructure (CMMI) in the Engineering Directorate of the National Science Foundation (NSF) are partnering with The Center for the Advancement of Science in Space (CASIS) to solicit research projects in the general fields of tissue engineering and mechanobiology that can utilize the International Space Station (ISS) National Lab to conduct research that will benefit life on Earth. U.S. entities including academic investigators, non-profit independent research laboratories and academic-commercial teams are eligible to apply.

Awards: Standard Grants. Anticipated Funding: \$2,000,000

Letter of Intent: Not Required

Proposal Submission Deadline: February 01, 2019 - February 15, 2019

Contacts: Aleksandr L. Simonian, telephone: (703) 292-2191, email: asimonia@nsf.gov

- Michele Grimm, telephone: (703) 292-4641, email: mgrimm@nsf.gov
-

Grant Program: EHR Core Research (ECR): STEM Learning and Learning Environments, Broadening Participation, and Workforce Development

Agency: National Science Foundation NSF 19-508

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19508/nsf19508.htm>

Brief Description: The EHR Core Research program (ECR) invites proposals for fundamental research (basic research or use-inspired basic research) that advances knowledge in one or more of the three Research Tracks: **Research on STEM Learning and Learning Environments, Research on Broadening Participation in STEM fields, and Research on STEM Workforce Development.**

The ECR program places emphasis on the rigorous development of theory and accumulation of knowledge to inform efforts to address challenges in STEM interest, learning, and participation, for all groups and all ages in formal and informal settings. This emphasis includes research on advancing evaluative methodologies to support research efforts funded through ECR.

ECR supports a wide range of research activities. ECR seeks to fund fundamental research that could involve the collection of new qualitative or quantitative data, secondary analyses using extant datasets, or meta-analyses. In addition, ECR supports research to develop innovative research methods, metrics, and conceptual models to measure existing and emerging phenomena, and to test theories that inform core scientific questions about STEM education and learning. The three levels of funding should align with the maturity of the proposed work, the size and scope of the empirical effort, and the capacity of the team to conduct the proposed research: (1) **Level I proposals**: have a maximum award size of \$500,000 and a maximum duration of 3 years; (2) **Level II proposals** have a maximum award size of \$1,500,000 and a maximum duration of 4 years; (3) **Level III proposals** have a maximum award size of \$2,500,000 and a maximum duration of 5 years.

Awards: Standard Grants. Anticipated Funding: \$35,000,000

Letter of Intent: Not Required

Proposal Submission Deadline: January 24, 2019

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

Grant Program: NSF Quantum Computing & Information Science Faculty Fellows (QCIS-FF)

Agency: National Science Foundation NSF 19-507

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19507/nsf19507.htm>

Brief Description: In 2016, the National Science Foundation (NSF) 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 (see https://www.nsf.gov/news/special_reports/big_ideas/index.jsp). One of these ideas, "The Quantum Leap: Leading the Next Quantum Revolution," advances quantum technologies of the future: quantum computing, quantum communication, quantum simulations and quantum sensors. Recent advances in understanding and exploiting quantum mechanics are laying the foundation for generations of new discoveries that can benefit society in unforeseen ways. This "quantum revolution" requires a highly-trained workforce that can advance the envelope of what is possible, through research and development of practical solutions for quantum technologies. Academic faculty serve a vital role in the development of this workforce, by training the next generation of students while performing vital research.

The disciplines of computer science (CS), information science (IS), and computer engineering (CE) are at the nexus of the interdisciplinary breakthroughs needed to design advanced quantum computing, modeling, communication and sensing technologies. NSF recognizes that there is inadequate research capacity in the CS/CE disciplines in the realm of Quantum Computing & Information Science (QCIS). The QCIS-Faculty Fellows (QCIS-FF) program therefore aims to grow academic research capacity in the computing and information science fields to support advances in quantum computing and/or communication over the long term. Specifically, QCIS-FF seeks to support departments and schools in U.S. institutions of higher education that conduct research and teaching in computer science, information science, and/or computer engineering, with the specific goal of encouraging hiring of tenure-track and tenured faculty in quantum computing and/or communication. Cross-disciplinary and multi-department hires are welcomed; however, intellectual ownership and primary assignment should be with the department primarily engaged in research and teaching activities for computer and information science and engineering. NSF funding will support the entire academic year salary and benefits of the newly recruited tenure-track or tenured faculty member for a duration of up to three years. Each proposal must

request support for only one faculty position. Total budget is not to exceed \$750,000 per proposal, with up to two awards per institution, across all departments in any given institution.

Proposals in response to this solicitation are to be submitted by the department chair/head or his/her designee. The grants will be awarded as continuing grants, subject to assessment each year, and the funding will be released in one-year increments only if the award conditions are met, as noted in this solicitation. NSF strongly encourages proposals from universities that do not have established quantum computing and/or communication activities, as well as hires that foster cross-departmental synergies..

Awards: Continuing Grants. Anticipated Funding: \$6,750,000

Letter of Intent: December 17, 2018

Proposal Submission Deadline: February 11, 2019 - February 25, 2019

Limit on Number of Proposals per Organization: 2

Contacts: Dmitri Maslov, Program Director, CISE/CCF, telephone: (703) 292-8910, email: dmaslov@nsf.gov

- Vipin Chaudhary, Program Director, CISE/OAC, telephone: (703) 292-2254, email: vipchaud@nsf.gov

Grant Program: Partnerships for Innovation (PFI)

Agency: National Science Foundation NSF 19-506

RFP Website: <https://www.nsf.gov/pubs/2019/nsf19506/nsf19506.htm>

Brief Description: The Partnerships for Innovation (PFI) Program within the Division of Industrial Innovation and Partnerships (IIP) offers researchers from all disciplines of science and engineering funded by NSF the opportunity to perform translational research and technology development, catalyze partnerships and accelerate the transition of discoveries from the laboratory to the marketplace for societal benefit.

PFI has five broad goals, as set forth by the American Innovation and Competitiveness Act of 2017 (“the Act”, [S.3084 — 114th Congress](#); [Sec. 602. Translational Research Grants](#)): (1) identifying and supporting NSF-sponsored research and technologies that have the potential for accelerated commercialization; (2) supporting prior or current NSF-sponsored investigators, institutions of higher education, and non-profit organizations that partner with an institution of higher education in undertaking proof-of-concept work, including the development of technology prototypes that are derived from NSF-sponsored research and have potential market value; (3) promoting sustainable partnerships between NSF-funded institutions, industry, and other organizations within academia and the private sector with the purpose of accelerating the transfer of technology; (4) developing multi-disciplinary innovation ecosystems which involve and are responsive to the specific needs of academia and industry; (5) providing professional development, mentoring, and advice in entrepreneurship, project management, and technology and business development to innovators.

In addition, PFI responds to the mandate set by Congress in [Section 601\(c\)\(3\) of the Act \(Follow-on Grants\)](#), to support prototype or proof-of-concept development work by participants, including I-Corps participants, with innovations that because of the early stage of development are not eligible to participate in a Small Business Innovation Research Program or a Small Business Technology Transfer Program. Finally, PFI seeks to implement the mandate set by Congress in [Section 102\(c\)\(a\) of the Act](#) (Broader Impacts Review Criterion Update) by enhancing partnerships between academia and industry in the United States, and expanding the participation of women and individuals from underrepresented groups in innovation, technology translation, and entrepreneurship. This solicitation offers two broad tracks for proposals in pursuit of the aforementioned goals:

The **Technology Translation (PFI-TT) track** offers the opportunity to translate prior NSF-funded research results in any field of science or engineering into technological innovations with promising commercial potential and societal impact. PFI-TT supports commercial potential

demonstration projects for academic research outputs in any NSF-funded science and engineering discipline. This demonstration is achieved through proof-of-concept, prototyping, technology development and/or scale-up work. Concurrently, students and postdoctoral researchers who participate in PFI-TT projects receive education and leadership training in innovation and entrepreneurship. Successful PFI-TT projects generate technology-driven commercialization outcomes that address societal needs.

The **Research Partnerships (PFI-RP) track** seeks to achieve the same goals as the PFI-TT track by supporting instead complex, multi-faceted technology development projects that are typically beyond the scope of a single researcher or institution and require a multi-organizational, interdisciplinary, synergistic collaboration. A PFI-RP project requires the creation of partnerships between academic researchers and third-party organizations such as industry, non-academic research organizations, federal laboratories, public or non-profit technology transfer organizations or other universities. Such partnerships are needed to conduct applied research on a stand-alone larger project toward commercialization and societal impact. In the absence of such synergistic partnership, the project's likelihood for success would be minimal.

The intended outcomes of both PFI-TT and PFI-RP tracks are: a) the commercialization of new intellectual property derived from NSF-funded research outputs; b) the creation of new or broader collaborations with industry (including increased corporate sponsored research); c) the licensing of NSF-funded research outputs to third party corporations or to start-up companies funded by a PFI team; and d) the training of future innovation and entrepreneurship leaders.

WEBINARS: *Webinars will be held to answer questions about the solicitation. Registration will be available on the NSF Partnerships for Innovation website (<https://www.nsf.gov/PFI>). Potential proposers and their partners are encouraged to attend.*

Limit on Number of Proposals per Organization: **There is no limit on the number of PFI-TT proposals an organization may submit to a deadline of this solicitation. However, an organization may not submit more than one (1) new or resubmitted PFI-RP proposal to a deadline of this solicitation. This eligibility constraint will be strictly enforced. If an organization exceeds this limit, the first PFI-RP proposal received will be accepted, and the remainder will be returned without review. An organization may not receive more than two (2) awards from a submission deadline of this solicitation.**

Internal Competition: If you are interested in submitting PFI-RP track proposal, please submit a pre-proposal to your college dean by November 7, 2018 using the following format. Each college dean is requested to forward maximum one pre-proposal with college recommendation to Atam Dhawan, SVPR by November 15, 2018. The selection of one institutional PFI-RP proposal will be announced by November 21, 2018. Institutional pre-proposal should follow the following format:

1. Cover Page: Title and list of all key investigators (including collaborators) with their affiliations and roles
2. Project Summary (max 1 page)
3. Intellectual Merit and Broader Impact (max 1 page)
4. Project Description: Significance, Innovation, Approach and Partnership with Management Plan (max 3 pages)
5. Budget including subcontracts
6. NSF format Biosketch for PI and Co-PIs

Awards: Standard Grants. Anticipated Funding: \$20,000,000; Number of Awards: 55-65

Letter of Intent: Not Required

Proposal Submission Deadline: January 17, 2019; July 10, 2019

Contacts: Jesus V. Soriano, telephone: (703) 292-7795, email: jsoriano@nsf.gov

Grant Program: Scalable Parallelism in the Extreme (SPX)**Agency: National Science Foundation NSF 19-505****RFP Website:** <https://www.nsf.gov/pubs/2019/nsf19505/nsf19505.htm>

Brief Description: Computing systems have undergone a fundamental transformation from the single-core processor-devices of the turn of the century to today's ubiquitous and networked devices with multi-core/many-core processors along with warehouse-scale computing via the cloud. At the same time, semiconductor technology is facing fundamental physical limits and single-processor performance has plateaued. This means that the ability to achieve performance improvements through improved processor technologies alone has ended. In recognition of this obstacle, the recent [National Strategic Computing Initiative](#) (NSCI) encourages collaborative efforts to develop, "over the next 15 years, a viable path forward for future high-performance computing (HPC) systems even after the limits of current semiconductor technology are reached (the 'post-Moore's Law era')."

Exploiting parallelism is one of the most promising directions to meet these performance demands. While parallelism has already been studied extensively and is a reality in today's computing technology, the expected scale of future systems is unprecedented. At extreme scales, factors that have small impacts today can become highly significant. For example, even short serial program sections can prove destructive to performance. Heterogeneity of processing elements [Central Processing Units (CPUs), Graphics-Processing Units (GPUs), and accelerators] and their memory hierarchies pose significant management challenges. High system complexity may lead to unacceptable latencies and mean time between failures, even if built with highly reliable components. Furthermore, the interconnectedness of large-scale distributed architectures poses an enormous challenge of understanding and providing guarantees on performance behavior. These are just four of many issues arising in the new era of parallel computing that is upon us.

The Scalable Parallelism in the Extreme (SPX) program aims to support research addressing the challenges of increasing performance in this modern era of parallel computing. This will require a collaborative effort among researchers in multiple areas, from services and applications down to micro-architecture. SPX encompasses all five NSCI [Strategic Objectives](#), including supporting foundational research toward architecture and software approaches that drive performance improvements in the post-Moore's Law era; development and deployment of programmable, scalable, and reusable platforms in the national HPC and scientific cyberinfrastructure ecosystem; increased coherence of data analytic computing and modeling and simulation; and capable extreme-scale computing. Coordination with industrial efforts that pursue related goals are encouraged.

Awards: Standard Grants. Anticipated Funding: \$10,000,000**Letter of Intent:** Not Required**Proposal Submission Deadline:** January 17, 2019**Contacts:** Anindya Banerjee, Program Director, CISE/CCF, telephone: (703) 292-7885, email: abanerje@nsf.gov

- Vipin Chaudhary, Program Director, CISE/OAC, telephone: (703) 292-2254, email: vipchaud@nsf.g

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

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

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

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

National Institutes of Health

Grant Program: NIH Exploratory/Developmental Research Grant Program (Parent R21 Clinical Trial Not Allowed)

Agency: National Institutes of Health PA-19-053

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PA-19-053.html>

Brief Description: The evolution and vitality of the biomedical, behavioral, and clinical sciences require a constant infusion of new ideas, techniques, and points of view. These may differ substantially from current thinking or practice and may not yet be supported by substantial preliminary data. Through the NIH Exploratory/Developmental Research Grant Program, the NIH seeks to foster the introduction of novel scientific ideas, model systems, tools, agents, targets, and technologies that have the potential to substantially advance biomedical, behavioral, and clinical research.

This program is intended to encourage new exploratory and developmental research projects. For example, such projects could assess the feasibility of a novel area of investigation or a new experimental system that has the potential to enhance health-related research. Another example could include the unique and innovative use of an existing methodology to explore a new scientific area. These studies may

involve considerable risk but may lead to a breakthrough in a particular area, or to the development of novel techniques, agents, methodologies, models, or applications that could have a major impact on a field of biomedical, behavioral, or clinical research.

Applications for Exploratory/Developmental Research Grant awards should include projects distinct from those supported through the traditional R01 activity code. For example, long-term projects, or projects designed to increase knowledge in a well-established area, are not appropriate for this FOA. Applications submitted to this FOA should be exploratory and novel. These studies should break new ground or extend previous discoveries toward new directions or applications. Projects of limited cost or scope that use widely accepted approaches and methods within well-established fields are better suited for the [NIH Small Research Grant Program](#).

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 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.

The first standard application due date for this FOA is February 16, 2019.

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

Grant Program: NIH Research Project Grant (Parent R01 Clinical Trial Not Allowed)

Agency: National Institutes of Health PA-19-056

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PA-19-056.html>

Brief Description: The NIH Research Project Grant supports a discrete, specified, circumscribed project in scientific areas that represent the investigators' specific interests and competencies and that fall within the mission of the participating NIH Institutes and Centers (ICs). The R01 is the original, and historically the oldest, grant mechanism used by the NIH to support health-related research and development.

Research grant applications are assigned to participating ICs based on receipt and referral guidelines and applications may be assigned to multiple participating ICs with related research interests. Applicants are encouraged to identify a participating IC that supports their area of research via the [R01 IC-Specific Scientific Interests and Contact](#) website and contact Scientific/Research staff from relevant ICs to inquire about their interest in supporting the proposed research project.

This Funding Opportunity Announcement does not accept applications proposing clinical trial(s). For specific information about the mission of each NIH IC, visit the [List of NIH Institutes, Centers, and Offices](#) website.

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.

The first standard application due date for this FOA is February 5, 2019.

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

Grant Program: Computational Genomics and Data Science Opportunities for Small Business (R43/R44 Clinical Trial Not Allowed)

Agency: National Institutes of Health PAR-19-061

[PAR-18-843](#), [R21](#) Exploratory/Developmental Research Grant

[PAR-18-844](#), [R01](#) Research Project Grant

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-19-061.html>

Brief Description: Through this FOA, NHGRI seeks to fund innovative commercial product development in computational genomics, data science, statistics, and bioinformatics for basic or clinical genomic sciences and broadly applicable to human health and disease, as well as commercial product development stemming from improvement of existing software or approaches demonstrated to be in broad use by the genomics community.

Research topics appropriate for this FOA include, but are not limited to, development of commercial computational, bioinformatics, statistical, or analytical approaches, tools, or software for:

- Interactive analysis and visualization of large genomic data sets.
- Identification or prioritization of disease-causal genetic variants.
- Causal statistical modeling related to genomic research.
- Analysis of single-cell or sub-cellular genomic data both in situ and in dissociated cells.
- Integrating model organism data with human data to derive biomedical insight.
- Integrating and interpreting various genomic data types, including sequence data, functional data, phenotypic data, and clinical data.
- Processing and integrating genome sequence data to enhance representation of population variation.
- Processing sequence data for sequence assembly, variant detection (SNPs and SVs), imputation, and resolution of haplotypes.
- Development of efficient and scalable algorithms for compute-intensive genomic applications, or otherwise achieving major cost reductions in genomic data processing and analysis.
- Enabling scalable and cost-effective curation of FAIR metadata for genomic and phenotypic data.
- Enhancing secure sharing and use of genomic data in combination with clinical data.
- Processing or analyzing new genomic data types, or major improvement in processing or analyzing existing genomic data types.
- Hardening an existing widely-used genomic data processing pipeline to enable its reproducible implementation by the biomedical research community.
- Improved and novel methods for integrating prior biological knowledge into machine learning models.

This FOA does not support:

- Development, maintenance, or curation of genomic databases and other genomic data resources. Applicants considering developing such resources are directed to the Genomic Community Resources (U24) program: <https://grants.nih.gov/grants/guide/pa-files/PAR-17-273.html>.
- Research not generalizable beyond one or a small number of diseases or biological systems. Research utilizing a small number of disease models or biological systems for proof-of-concept studies may be acceptable when the resulting methods, tools, approaches, or software are generalizable.
- Development and application of ontologies or controlled vocabularies, or manual curation efforts.
- Basic data science research that is not developed for genomics.
- Significant experimental work. Applicants may propose limited experimental work to test predictions generated as a result of computational approaches and/or inform modeling efforts, but this should not be a major focus of the application.
- Approaches not clearly pertaining to computational genomics and data science and/or lacking relevance to human health and disease.
- Work focused on microbial genomics or the microbiome.

In addition to this PAR, NHGRI participates in several funding opportunities <https://www.genome.gov/10000991/nhgri-funding-opportunities-research/>, including the parent R01 and R21 announcements.

Award: According to statutory guidelines, total funding support (direct costs, indirect costs, fee) normally may not exceed \$150,000 for Phase I awards and \$1,000,000 for Phase II awards. With appropriate justification from the applicant, Congress will allow awards to exceed these amounts by up to 50% as a hard cap (\$225,000 for Phase I and \$1,500,000 for Phase II). However, NIH has received a waiver from SBA, as authorized by statute, to exceed the hard cap of \$225,000 for Phase I or \$1,500,000 for Phase II for specific topics.

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

Deadline: [Standard dates](#) apply, by 5:00 PM local time of applicant organization.

*** Note new SBIR/STTR Standard Due Dates.

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

Grant Program: NIH Small Research Grant Program (Parent R03 Clinical Trial Not Allowed)

Agency: National Institutes of Health PA-19-052

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PA-19-052.html>

Brief Description: The NIH Small Research Grant Program supports discrete, well-defined projects that realistically can be completed in two years and that require limited levels of funding. This program supports different types of projects including, but not limited to, the following:

- Pilot or feasibility studies;
- Secondary analysis of existing data;
- Small, self-contained research projects;
- Development of research methodology; and
- Development of new research technology.

Applications are assigned to participating Institutes and Centers (ICs) based on receipt and referral guidelines and applications may be assigned to multiple participating ICs with related research interests. Applicants are encouraged to identify a participating IC that supports their area of research via the [R03 IC-Specific Scientific Interests and Contact](#) website and contact Scientific/Research staff from relevant ICs to inquire about their interest in supporting the proposed research project.

This Funding Opportunity Announcement does not accept applications proposing clinical trial(s)

Award: Application budgets are limited to \$50,000 in direct costs per year.

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.

The first standard application due date for this FOA is February 16, 2019.

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

Grant Program: BRAIN Initiative: Research Resource Grants for Technology Integration and Dissemination (U24 Clinical Trial Not Allowed)

Agency: National Institutes of Health RFA-NS-19-006

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-19-006.html>

Brief Description: The BRAIN Initiative: The Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative® is aimed at revolutionizing our understanding of the human brain. By accelerating the development and application of innovative technologies, researchers will be

able to produce a new dynamic picture of the brain that, for the first time, will show how individual cells and complex neural circuits interact in both time and space. It is expected that the application of these new tools and technologies will ultimately lead to new ways to treat and prevent brain disorders.

NIH is one of several federal agencies involved in the BRAIN Initiative. Planning for the NIH component of the BRAIN initiative is guided by the long-term scientific plan, “[BRAIN 2025: A Scientific Vision](#),” which details seven high-priority research areas and calls for a sustained federal commitment of \$4.5 billion over 12 years. This FOA and other FOAs issued in Fiscal Year 2018 are based on careful consideration by the NIH of the recommendations of the BRAIN 2025 Report, and input from the NIH BRAIN Multi-Council Working Group. Videocasts of the NIH BRAIN Multi-Council Working Group are available at <http://www.braininitiative.nih.gov/about/mcwg.htm>.

The overall goal of this FOA is to accelerate the scientific impact of the BRAIN Initiative through rapid dissemination of developed and validated technologies and resources broadly to the neuroscience research community. Projects may accomplish this goal by engaging in one or more of the following types of activities:

- Production and distribution of reagents (e.g., viral vectors or transgenic lines) using quality control manufacturing processes
- Services providing customized instrumentation based on end user needs
- Provision of state-of-art components, devices, or integrated systems (e.g., for assaying neural activity and/or connectivity) either distributed to end users or operated as specialized core facilities with user engagement
- Resources focused on enabling the translation of neurotechnologies for human use
- Maintenance, minor enhancements, and distribution of open source computational models and software packages
- User facilities that enable scientists from outside institutions to utilize specialized tools or techniques
- Training in usage of the resource

Award: The NIH anticipates providing \$10M per year to fund an estimated 10 to 20 awards.

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

Deadline: January 4, 2019, June 27 2019, February 27, 2020, November 27, 2020, June 27, 2021, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

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

Grant Program: BRAIN Initiative: Research 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.

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.

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/PAR-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.

Department of Defense/US Army/DARPA/ONR

Grant Program: Photonics in the Package for Extreme Scalability (PIPES)

Agency: Department of Defense DARPA HR001119S0004

Website:

<https://www.fbo.gov/index?s=opportunity&mode=form&id=9493e4e64b87072050593af7d0237683&tab=core&cvview=1>

Brief Description: To create unique and differentiated domestic manufacturing capabilities, potential areas of exploration in Phase II include the integration of photonics, microelectromechanical systems (MEMS), and radiofrequency (RF) components directly into advanced circuits and semiconductor manufacturing processes. This is important for the DoD because the Department's electronics manufacturing needs are numerous and diverse and its systems have unique requirements and specific functionality. Although traditional CMOS scaling for digital processing is still an important area of investment, many critical DoD-relevant electronics will likely derive from alternative and complementary vectors. Anticipated investments will seek to ensure that new capabilities support a strategy for the enduring availability of differentiated, high-performance electronics for the DoD and its commercial sector partners.

The Microsystems Technology Office at DARPA seeks innovative research proposals to develop optical technologies for data movement in digital microelectronics to allow disruptive system scaling through parallelism. Proposed research should investigate 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.

Awards: Multiple. Approximately \$65M of funding is anticipated for awards made against this BAA, with a distribution of: o \$35M for Technical Area 1 (TA1) including Technical Area 1B (TA1B) o \$20M for Technical Area 2 (TA2) o \$10M for Technical Area 3 (TA3)

Proposal Deadline:

Abstract Due Date: November 20, 2018 at 1:00 PM o FAQ Submission Deadline: January 3, 2019 at 1:00 PM o Proposal Due Date: January 17, 2019 at 1:00 PM

Contact Information: Dr. Gordon Keeler, Program Manager BAA Coordinator:

HR001119S0004@darpa.mil

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

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

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

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

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

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

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

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

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

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

Brief Description: The Naval Research Laboratory (NRL) The Naval Research Laboratory (NRL) is the Navy's corporate laboratory. NRL conducts basic and applied research for the Navy in a variety of scientific and technical disciplines. The basic research program is driven by perceptions about future requirements of the Navy. NRL conducts most of its research program at its own facilities but also funds some related research such as anticipated by this announcement. More extensive research support opportunities are available from the Naval Research Laboratory (NRL). NRL announcements may be accessed via the Internet at <https://www.nrl.navy.mil/doingbusiness/contracting-division/baa>. NRL is interested in receiving proposals for Long-Range Science and Technology (S&T) Projects which offer potential for advancement and improvement of Navy and Marine Corps operations. Readers should note that this is an announcement to declare NRL's broad role in competitive funding of meritorious research

across a spectrum of science and engineering disciplines. A brief description of the NRL Program Codes and the science and technology thrusts that NRL is pursuing is provided below. Additional information can be found at the NRL website at <https://www.nrl.navy.mil/research/directorates-divisions/>. This announcement is an expression of interest only and does not commit the Government to make any award or to pay for any proposal preparation costs. The cost of proposal preparation for response to a BAA is not considered an allowable direct charge to any resultant contract or any other contract; however, it may be an allowable expense to the normal bid and proposal indirect cost specified in FAR 31.205-18.

Awards: Various

Proposal Deadline: May 9, 2019

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

Department of Education

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

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

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

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

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

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

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

Competitions in This Notice: The Institute will conduct nine research competitions in FY 2019 through two of its centers: The Institute's National Center for Education Research (NCER) will hold a total of five competitions--one competition in each of the following areas: Education research; education research and development centers; statistical and research methodology in education; partnerships and collaborations

focused on problems of practice or policy; and low-cost, short-duration evaluation of education interventions.

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

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

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

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

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

EPA

Grant Program: 16th Annual P3 Awards: A National Student Design Competition Focusing on People, Prosperity and the Planet - Safe and Sustainable Water Resources

EPA-G2019-P3-Q1 – Air Quality

EPA-G2019-P3-Q2 – Safe and Sustainable Water Resources

EPA-G2019-P3-Q3 – Sustainable and Healthy Communities

EPA-G2019-P3-Q4 – Chemical Safety

Agency: Environmental Protection Agency

Website: <https://www.epa.gov/research-grants/16th-annual-p3-awards-national-student-design-competition-focusing-people-prosperity>

Brief Description: The U.S. Environmental Protection Agency (EPA) – as part of its People, Prosperity and the Planet (P3) Award Program – is seeking applications proposing to research, develop, design, and demonstrate solutions to real world challenges. The P3 competition highlights the use of scientific principles in creating innovative technology-based projects that achieve the mutual goals of improved quality of life, economic prosperity, and protection of the planet – people, prosperity, and the planet. The EPA offers the P3 competition to respond to the needs of people in the United States (U.S.)—e.g., those in small, rural, tribal, and disadvantaged communities. Please see the People, Prosperity and the Planet (P3) Student Design Competition website for more details about this program. Proposed projects must embody the P3 approach, which is that they have the intention and capability to simultaneously improve the quality of people’s lives, provide economic benefits, and protect the environment.

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.b 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.C and V.D of this solicitation.

Awards; The first phase is a competition for one-year grants of up to \$25,000 to test, research, and develop innovative scientific projects or engineering designs that use the P3 approach. In the spring of 2020, the Phase I grantees awarded from this solicitation are required to present their projects/designs at the National Student Design Expo. EPA will provide teams with information about the Expo during the

award year. At the end of Phase I, teams will submit a *Project Report* that will serve as an application for a Phase II grant award of up to \$100,000. The Phase II grant awards are intended to support the further development and demonstration of the projects/designs created in Phase I. The competitors for 2020 P3 Phase II grants are limited to recipients of Phase I grant awards from this solicitation.

Submission Deadline: December 11, 2018, 11:59:59 pm Eastern Time

Contact Information: Technical Contact: Angela Page (page.angelad@epa.gov), Phone: 202-564-7957; Eligibility Contact: Ron Josephson (josephson.ron@epa.gov), Phone: 202-564-7823; Electronic Submissions: Debra M. Jones (jones.debram@epa.gov), Phone: 202-564-7839

Department of Energy

Grant Program: Science Undergraduate Laboratory Internship (SULI)

Agency: Department of Energy

Website: <https://science.energy.gov/wdts/suli/>

Brief Description: The Science Undergraduate Laboratory Internship (SULI) program encourages undergraduate students and recent graduates to pursue science, technology, engineering, and mathematics (STEM) careers by providing research experiences at the Department of Energy (DOE) laboratories. Selected students participate as interns appointed at one of [17 participating DOE laboratories/facilities](#). They perform research, under the guidance of laboratory staff scientists or engineers, on projects supporting the DOE mission. The SULI program is sponsored and managed by the DOE Office of Science's, Office of Workforce Development for Teachers and Scientists (WDTS) in collaboration with the DOE laboratories/facilities.

Applications for the SULI program are solicited annually for three separate internship terms. Internship appointments are 10 weeks in duration for the Summer Term (May through August) or 16 weeks in duration for the Fall (August through December) and Spring (January through May) Terms. Each DOE laboratory/facility offers different research opportunities; not all DOE laboratories/facilities offer internships during the Fall and Spring Terms.

Awards: Various

Submission Deadline: January 10, 2019 at 5:00 PM ET.

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 CO₂ 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 CO₂ stored) storage complex. A storage complex consists of: (1) one or more storage reservoirs, with permeability and porosity that allow injection and storage of CO₂; and (2) one or more low-permeability seals, which enclose the reservoir(s) and serve as barriers to migration of CO₂ out of the reservoir.

Awards: Various

Submission Deadline: Responses to this RFI must be submitted electronically to: 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

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

NASA

Grant Program: Second Heliophysics Space Weather Operations to Research

Agency: NASA NNH18ZDA001N-2HSWO2R

Website: <https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7B42510C5A-BC75-3943-5FD4-C4C2C63B540E%7D&path=open&method=init>

Brief Description: NSF's primary role in developing space weather readiness for the nation is in the support of basic research that advances fundamental understanding of space weather and related processes, specifically, the generation of solar storms, their propagation through the interplanetary medium, and the generation of disturbances in the near-Earth space environment and atmosphere. NSF-supported community members use that fundamental understanding in the development of models for these space weather processes, which draw on observations from NSF's persistent ground-based observational platforms, among others, to test and further refine our community's understanding. The goals of these NSF funded research activities are to benefit society and contribute to the achievement of specific, desired societal outcomes, such as improving space weather predictive capability.

For this opportunity, NASA, NOAA, and NSF have identified the following focus area for research and development to advance forecast models of energetic particles in the heliosphere: • Improve forecasts of the energetic proton and/or heavy ion conditions in the heliosphere due to solar eruptions. The primary goal of this funding is to support research by the grant recipient to improve numerical models and/or data utilization techniques that could advance forecasting capabilities and which could also lead to improved scientific understanding. Effective utilization of available data is encouraged. Employing data

assimilation, ensemble, and/or machine-learning techniques is also encouraged. Improved forecast capabilities could include, for example, forecasts of solar event probabilities and enhanced energetic particle levels one or more days prior to a solar eruption, as well as probabilities of event duration, peak flux levels, and integrated event fluence following the initiation of a solar eruption. Improved forecasts of solar energetic particles can support numerous applications, including human and robotic exploration beyond low-Earth orbit, satellite launch and on-orbit operations, aviation operations, and radio communication.

Awards: Various

Proposal Deadline: Step-1 Proposal due on February 1, 2019

Contact: James Spann Heliophysics Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: (202) 358-0574 Email: jim.spann@nasa.gov

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 Chiamonte, Program Scientist for Physical Sciences
NASA Headquarters

E-mail: francis.p.chiamonte@nasa.gov

Phone: 202-358-0693

National Endowment of Humanities

Grant Program: Digital Humanities Advancement Grants

Agency: National Endowment for the Humanities

Website: <https://www.neh.gov/grants/listing>

Brief Description: Digital Humanities Advancement Grants (DHAG) support digital projects at different stages throughout their lifecycles, from early start-up phases through implementation and sustainability. Experimentation, reuse, and extensibility are hallmarks of this program, leading to innovative work that can scale to enhance scholarly research, teaching, and public programming in the humanities. You can find a discussion of the forms that experimentation can take in the Frequently Asked Questions document. This program is offered twice per year. Proposals are welcome for digital initiatives in any area of the humanities.

Through a special partnership with NEH and pending the availability of appropriated funds, the Institute of Museum and Library Services (IMLS) anticipates providing additional funding to this program to encourage innovative collaborations between museum or library professionals and humanities professionals to advance preservation of, access to, use of, and engagement with digital collections and services. IMLS and NEH may jointly fund some DHAG projects that involve collaborations with museums and/or libraries.

Digital Humanities Advancement Grants may involve

- creating or enhancing experimental, computationally-based methods, techniques, or infrastructure that contribute to the humanities;
- pursuing scholarship that examines the history, criticism, and philosophy of digital culture and its impact on society; or
- conducting evaluative studies that investigate the practices and the impact of digital scholarship on research, pedagogy, scholarly communication, and public engagement.

Awards: Maximum award amount \$325,000 in outright, \$50,000 in match

Deadline: January 15, 2019

Contact: Contact the Office of Digital Humanities Team odh@neh.gov

Grant Program: Summer Seminars and Institutes

Agency: National Endowment for the Humanities

Website: <https://www.neh.gov/grants/education/summer-seminars-and-institutes>

Brief Description: NEH Summer Seminars and Institutes grants broaden and deepen understanding of the humanities in supporting professional development programs, specifically designed for a national audience of K-12 educators or college and university faculty. The programs provide one- to four-week opportunities for participants (NEH Summer Scholars) to explore a variety of topics relevant to K-12 or undergraduate education in the humanities.

NEH Summer Seminars and Institutes

- focus on the study and teaching of significant texts and other resources;
- provide models of excellent scholarship and teaching;
- contribute to the intellectual growth of the of participants; and
- build lasting communities of inquiry.

An NEH Summer Seminar or Institute may be hosted by a college, university, learned society, center for advanced study, library or other repository, cultural or professional organization, or school or school system. The host site must provide facilities for collegial interaction and scholarship. The program must be held only in the United States and its territories.

Seminars and Institutes are designed either for K-12 educators or for college and university faculty. Programs for K-12 educators must involve someone with significant K-12 experience in both project planning and implementation and must respond to K-12 curricular needs.

Awards: Maximum award amount

Seminars: \$125,000

Institutes: \$200,000

Deadline: February 14, 2019

Contact: Contact the Division of Education Programs Team 202-606-2324 sem-inst@neh.gov

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

Project start date: October 1, 2019

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

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 maybe listed). Letters-of-Intent should emailed to 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) and Atam Dhawan (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.

Streamlyne Question of the Week

Question: I need to change my budget - Do I need to change it in Streamlyne?

Answer: You can change your budget at any point before submitting the proposal into workflow approval. For more information, please contact your college ambassador, or see New User Manual posted

on the Research website
<http://www.njit.edu/research/sites/research/files/StreamlyneNewUserManualCommonElements.pdf>).
More FAQs on Streamlyne: Please visit <http://www.njit.edu/research/streamlyne/>

Streamlyne Information

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

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

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

How-to-do-Videos

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

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

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

John McCarthy, NCE Director of Research; (973) 596-3247; john.p.mccarthy@njit.edu
Cristo Leon, CSLA Director of Research; (973) 596-6426; cristo.e.yanezleon@njit.edu
Sean Andrews, YWCC Director of Research; (973) 596-5352; sean.t.andrews@njit.edu
Iris Pantoja, NCE, CoAD and MTSM Project Manager; 973-596-4483; irp3@njit.edu

Need Information about Funding?

Finding Research Opportunities and Collaborations (FROC) **Walk-In Open-Hour Discussion with SVPR Over Tea**

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

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

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

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

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

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

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