

NJIT Research Newsletter

Issue: ORN-2016-038

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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(Related to research funding)

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NJIT Office of Research Event Calendar Save the Date

NJIT Undergraduate Research and Innovation Student Seed Grant Workshop:

October 20, 2016; 2.00 PM – 6.00 PM; Ballroom A, Campus Center

NJIT Faculty Research Advisory Board Meeting:

November 14, 2016; 12.00 PM – 1.30 PM; Ballroom B, Campus Center

NJIT 2016 Research Centers and Laboratories Showcase:

November 17, 2016; 10.30 AM – 2.30 PM; Ballroom B, Campus Center

Agenda:

10.00 AM- 10.30 AM: Uploading of power-point files on individual tables

10.30 AM - 10.45 AM: Introductions and Welcome

10.45 AM - 12.00 PM: Keynote Talk and Q&A: Dr. Nora Savage, Program Director, Biological and Environmental Interactions of Nanoscale Materials, Chemical, Bioengineering, Environmental and Transport Systems (CBET) Division, NSF

12.00 PM - 12.30 PM: Lunch and Networking

12.30 PM - 2.30 PM: Poster Session and Networking

Keynote Title: NSF– Nine Strategies for Funding

Abstract: The development and use of nanotechnology could have a dramatic impact on our global society, due to the potential to substantially improve the characteristics and performance of a number of systems and commercial products. Potential applications include medical imaging and therapies, environmental restoration and protection, electronics, energy storage, generation and distribution, food protection and production and water remediation and conservation. The

Biological and Environmental Interactions of Nanoscale Materials is focused on enabling these advances through the acquisition of fundamental scientific knowledge elucidating the mechanistic behavior of nanoparticles. As society moves away from passive employment of nanoparticles in composites and materials towards active devices and structures, embedded with intelligence, this understanding becomes increasingly important.

This presentation will provide a description of the National Science Foundation funding opportunities, highlighting the Biological and Environmental Interactions of Nanoscale Materials Program within the Chemical, Bioengineering, Environmental and Transport Systems (CBET) Division in the Engineering Directorate. Tips for successful proposals will be offered. Details about specific programs offered by the Foundation will be shared as well as opportunities to interact with NSF. In addition, information concerning the National Nanotechnology Initiative will be provided along with unique opportunities to engage with the National Nanotechnology Coordination Office.

Speaker Bio: Dr. Nora Savage obtained her bachelor's degree in Chemical Engineering in 1992 from Prairie View A&M University located in Prairie View, Texas. She received two Masters Degrees (in Environmental Engineering and Environmental Science) from the University of Wisconsin-Madison, located in Madison, Wisconsin in 1995, and a doctoral degree in Environmental Science from the same institution in 2000. Nora has worked for the U.S. federal government for almost twenty years. In this capacity she has served the environmental nanotechnology research community through her contributions to strategic research direction. Nora served as a Team Lead for nanotechnology within the Office of Research and Development within the U.S. Environmental Protection Agency. She currently serves as Program Director within the Engineering Directorate of the National Science Foundation.

Nora has authored and co-authored numerous articles on nanotechnology and emerging technologies in leading journals, including the Journal of Nanoparticle Research and Toxicological Sciences. She served as lead editor for the books "Emerging Technologies: Socio-Behavioral Life Cycle Approaches" and for "Nanotechnology for Water Applications" (now in its second edition) and has contributed chapters to several other books, including the Oxford Handbook of Nanoscience and Technology, vol. III.

Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF MRI: Internal Competition

NSF: Advanced Biomanufacturing of Therapeutic Cells (ABTC); IUSE / Professional Formation of Engineers: REvolutionizing engineering and computer science Departments (IUSE/PFE: RED); Data Infrastructure Building Blocks (DIBBs)

NIH: BD2K Support for Meetings of Data Science Related Organizations (U13); NINDS Ruth L. Kirschstein National Research Service Award (NRSA) for Training of Postdoctoral Fellows (F32); BRAIN Initiative: New Concepts and Early-Stage Research for Large-Scale Recording and Modulation in the Nervous System (R21);

Department of Defense/US Army/DARPA/ONR: DoD USAMRMC FY17 Broad Agency Announcement for Extramural Medical Research; Biological Technologies

Department of Energy: Collaboration Opportunity Notice with the National Energy Technology Laboratory; Solid State Lighting Advanced Technology R&D 2017

NASA: ROSES 2016: Habitable Worlds

Recent Research Grant and Contract Awards

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

PI: Louis Lanzerotti (PI) and Andrew Gerrard (Co-PI)

Department: Center for Solar Terrestrial Research

Grant/Contract Project Title: Van Allen Probes RBSPICE Phase E Operations - Extended Mission I (ARDES)

Funding Agency: NASA

Duration: 07/15/16-12/15/17

PI: Bharat Biswal

Department: Biomedical Engineering

Grant/Contract Project Title: CRCNS: Neurophysiological Basis of Brain Connectivity

Funding Agency: ONR

Duration: 09/01/14-08/31/17

PI: Stanley Craig (PI)

Department: CPCP

Grant/Contract Project Title: New Jersey GEAR UP

Funding Agency: NJ Higher Education

Duration: 09/26/16-09/25/17

PI: Stanley Craig (PI)

Department: CPCP

Grant/Contract Project Title: College Bound

Funding Agency: NJ Higher Education

Duration: 09/26/16-09/25/17

In the News...

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

Preparing the Nation for Space Weather: New Executive Order: President Obama signed an [Executive Order](#) that seeks to coordinate efforts to prepare the Nation for space weather events. The Executive Order will help reduce economic loss, save lives, and enhance national security by ordering the creation of nationwide response and recovery plans and procedures that incorporate technologies that mitigate the effects of space-weather events. By this action, the Federal Government will lead by example and help motivate state and local governments, and other nations, to create communities that are more resilient to the hazards of space weather.

The term “space weather” refers to effects on the space environment that arise from emissions from the sun, including solar flares, solar energetic particles, and coronal mass ejections. Space weather is a natural hazard that can significantly affect critical infrastructure essential to the economy, social wellbeing, and national security, such as electrical power, water supply, health care, and transportation. More information on the website <https://www.whitehouse.gov/blog/2016/10/12/preparing-nation-space-weather-new-executive-order>.

NIH nearly doubles investment in BRAIN Initiative research: The National Institutes of Health announced its third round of grants to support the goals of the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, bringing NIH's total fiscal year 2016 investment to just over \$150 million. "In only three years we've already seen exciting new advances in neuroscience research come out of the BRAIN Initiative," said Walter J. Koroshetz, M.D., director of NIH's National Institute of Neurological Disorders and Stroke. Over one hundred new awards, totaling more than \$70 million, will go to over 170 investigators working at 60 institutions. These awards expand NIH's efforts to develop new tools and technologies to understand neural circuit function and capture a dynamic view of the brain in action. Projects include proposals to develop computer programs that may help researchers detect and diagnose autism and Alzheimer's disease from brain scans, build a cap that uses ultrasound waves to precisely stimulate brain cells, create a "neural dust" system made of tiny electric sensors for wirelessly recording brain activity, improve current rehabilitation technologies for helping the lives of stroke patients, and study how the brain reads and speaks. More information on: <https://www.nih.gov/news-events/news-releases/nih-nearly-doubles-investment-brain-initiative-research>

The Administration's Report on the Future of Artificial Intelligence: Under President Obama's leadership, America continues to be the world's most innovative country, with the greatest potential to develop the industries of the future and harness science and technology to help address important challenges. Over the past 8 years, President Obama has relentlessly focused on building U.S. capacity in science and technology. This Thursday, President Obama will host the [White House Frontiers Conference](#) in Pittsburgh to imagine the Nation and the world in 50 years and beyond, and to explore America's potential to advance towards the frontiers that will make the world healthier, more prosperous, more equitable, and more secure.

Today, to ready the United States for a future in which Artificial Intelligence (AI) plays a growing role, the White House is releasing a report on future directions and considerations for AI called [Preparing for the Future of Artificial Intelligence](#). This report surveys the current state of AI, its existing and potential applications, and the questions that progress in AI raise for society and public policy. The report also makes recommendations for specific further actions. A companion [National Artificial Intelligence Research and Development Strategic Plan](#) is also being released, laying out a strategic plan for Federally-funded research and development in AI.

Preparing for the Future of Artificial Intelligence details several policy opportunities raised by AI, including how the technology can be used to advance social good and improve government operations; how to adapt regulations that affect AI technologies, such as automated vehicles, in a way that encourages innovation while protecting the public; how to ensure that AI applications are fair, safe, and governable; and how to develop a skilled and diverse AI workforce. Full report is available on the website:

<https://www.whitehouse.gov/blog/2016/10/12/administrations-report-future-artificial-intelligence>

Crisp Resilience: NSF's Critical Resilient Interdependent Infrastructure Systems and Processes (CRISP) seeks to "enhance the understanding, design and operation of interdependent critical infrastructure systems and processes that provide essential goods and services despite disruptions and failures from any cause, natural, technological or malicious, and to provide opportunities to innovate in ICIs to enrich society with new goods and services." The focus of a new [CRISP solicitation](#) "is not only the mitigation of failure, but also the engineering of the recovery processes to leverage the positive infrastructure interdependencies and minimize the negative ones."

Webinar and Events

Event: NSF Webinar: Smart & Connected Communities (S&CC) Webinar

When: October 20, 2016 2.30 PM – 3.30 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=190025&org=NSF

Brief Description: The goal of the [Smart & Connected Communities \(S&CC\)](#) program solicitation is to support strongly interdisciplinary, integrative research and research capacity-building activities that will improve understanding of smart and connected communities and lead to discoveries that enable sustainable change to enhance community functioning. Unless stated otherwise, for the purposes of this year's solicitation, communities are physical, geographically-defined entities, such as towns, cities, or incorporated rural areas, consisting of various populations, with a governance structure and the ability to engage in meaningful ways with the proposed research. Successful S&CC projects are expected to pursue research and research capacity-building activities that integrate multiple disciplinary perspectives and undertake meaningful community engagement, and to include appropriate and robust evaluation plans for assessing activities and outcomes. To meet the multidisciplinary criterion, proposals must meaningfully integrate across both social and technological research dimensions. Successful proposals are also expected to include appropriate community engagement as defined further in the solicitation.

The S&CC program spans NSF's Directorates for Computer and Information Science and Engineering (CISE); Education and Human Resources (EHR); Engineering (ENG); Geosciences (GEO); and Social, Behavioral, and Economic Sciences (SBE). This webinar will provide an overview of the S&CC program solicitation and help answer questions of prospective principal investigators (PIs).

To Join the Webinar: Please register by 11:59pm EDT on Wednesday October 19, 2016 at: <http://nsf.webex.com/nsf/j.php?RGID=r3ef26e6a551deaff7b1ec3e6d22e7f92>

Contacts: David Corman, Program Director, CISE/CNS, telephone: (703) 292-8754, email: dcorman@nsf.gov

Event: NSF I-Corps Webinar

When: November 1, 2016 2:00 PM - 4:00 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=189701&org=NSF

Brief Description: Curious about the NSF I-Corps program? Join this monthly introductory webinar to learn more about I-Corps Teams and how they contribute to the innovation ecosystem. During the webinar, I-Corps program directors will answer questions about I-Corps and provide updated information about I-Corps contacts, the [curriculum](#), important dates and other aspects of I-Corps. The I-Corps curriculum provides real-world, hands-on, immersive learning about what it takes to successfully transfer knowledge into products and processes that benefit society. The webinar will be held the **first Tuesday of every month at 2:00 p.m., eastern time.**

To join the webinar:

1. Access the audio portion of the webinar by phone by calling (800) 857-5210 (for callers inside the U.S.) OR (210) 234-7080 (for callers outside the U.S.). The participant passcode is 3192939#
2. Access the [visual portion](#) of the webinar (WebEx meeting number 746 732 125):
 - Go to <https://nsf.webex.com/nsf/j.php?MTID=m37c931eeb5d7a1c32e62c41975c03a2b>
 - Note: Firefox is recommended for Mac users.
 - If requested, enter your name and email address.
 - If a password is required, enter the meeting password: I_C0rp5!
 - Click "Join".
 - You may download the slides in advance--[download the slides](#) (PDF, 1.6 MB).

For assistance joining the meeting, go to <https://nsf.webex.com/nsf/mc> and click "Support" on the left navigation bar.

Note for first-time users: To check whether you have the appropriate players installed for UCF (Universal Communications Format) rich media files, go to <https://nsf.webex.com/nsf/systemdiagnosis.php>.

Event: 2016 NRT (NSF Research Traineeship) Program Information Webinar

When: November 9, 2015 1:00 AM to December 9, 2016 11:45 PM

Website: http://www.nsf.gov/events/event_summ.jsp?cntn_id=134466&org=NSF

Brief Description: The NSF Research Traineeship program (NRT) prerecorded informational videos to provide an overview of the NRT program and describe the key similarities and differences of the two tracks. The aim of these webinars was to give potential principal investigators information on program announcement [16-503](#) by emphasizing several key features and requirements of each track.

Grant Opportunities

Internal Competition: National Science Foundation

NSF Limited Submission and Internal Competition Through College/School Deans:

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

Agency: National Science Foundation NSF 15-504

RFP Website: <http://www.nsf.gov/pubs/2015/nsf15504/nsf15504.htm>

Brief Description: The Major Research Instrumentation Program (MRI) serves to increase access to shared scientific and engineering instruments for research and research training in our Nation's institutions of higher education, not-for-profit museums, science centers and scientific/engineering research organizations. The program provides organizations with opportunities to acquire major instrumentation that supports the research and research training goals of the organization and that may be used by other researchers regionally or nationally.

Each MRI proposal may request support for the acquisition (Track 1) or development (Track 2) of a single research instrument for shared inter- and/or intra-organizational use. Development efforts that leverage the strengths of private sector partners to build instrument development capacity at MRI submission-eligible organizations are encouraged.

The MRI program assists with the acquisition or development of a shared research instrument that is, in general, too costly and/or not appropriate for support through other NSF programs. The program does not fund research projects or provide ongoing support for operating or maintaining facilities or centers.

The instrument acquired or developed is expected to be operational for regular research use by the end of the award period. For the purposes of the MRI program, a proposal must be for *either* acquisition (Track 1) *or* development (Track 2) of a single, well-integrated instrument. The MRI program does not support the acquisition or development of a suite of instruments to outfit research laboratories or facilities, or that can be used to conduct independent research activities simultaneously.

Instrument acquisition or development proposals that request funds from NSF in the range \$100,000-\$4 million may be accepted from any MRI-eligible organization. Proposals that request funds from NSF less than \$100,000 may also be accepted from any MRI-eligible organization for

the disciplines of mathematics or social, behavioral and economic sciences and from non-Ph.D.-granting institutions of higher education for all NSF-supported disciplines.

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 cost-sharing and cannot include it. National Science Board policy is that voluntary committed cost sharing is prohibited.

Limited Number of Submission: Three (3) as described below. (Expected from the previous solicitation NSF 15-504)

If three proposals are submitted, at least one of the proposals must be for instrument development (i.e., no more than two proposals may be for instrument acquisition).

Awards Range: \$100,000-\$4 million

Letter of Intent: Not Required

Submission Deadline: January 11, 2017

Internal Competition Deadline to College Dean's Office: November 1, 2016: Please submit up to 5 pages pre-proposal white paper to your respective Dean by November 1, 2016 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, 2016. The final selection will be announced by November 14. Please see details on the format requirement for internal submission in the previous Research Newsletter issues ORN-2016-36 or ORN-2016-37 posted on the research website <http://www5.njit.edu/research/>.

National Science Foundation

Grant Program: Advanced Biomanufacturing of Therapeutic Cells (ABTC)

Agency: National Science Foundation NSF 17-502

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17502/nsf17502.htm>

Brief Description: In recent years, somatic cells as therapeutic agents have provided new treatment approaches for a number of pathological conditions that were deemed untreatable, or difficult to treat. Several successful cell therapies using T cells have been demonstrated for cancer and autoimmune diseases, while stem cell therapies have given relief for heart disease and stroke. Hundreds of clinical trials are ongoing to examine efficacy of cell therapies for a variety of other diseases including diabetes, Alzheimer's, Parkinson's, and Crohn's disease. Production of therapeutic cells is currently expensive and, therefore, cost prohibitive for the large number of people who might benefit from these treatments. The overarching goal of this Advanced Biomanufacturing of Therapeutic Cells (ABTC) solicitation is to catalyze well-integrated interdisciplinary research to understand, design, and control cell manufacturing systems and processes that will enable reproducible, cost-effective, and high-quality production of cells with predictable performance for the identified therapeutic function.

Awards: Standard Grants. Anticipated funding amount: \$5,000,000

Letter of Intent: Not Required

Preliminary Proposal Submission Due Date: January 04, 2017

Full Proposal Submission Due Date: April 17, 2017

Contacts:

- Carol Lucas, telephone: (703) 292-4608, email: carlucas@nsf.gov
- Rajakkannu Mutharasan, telephone: (703) 292-4608, email: rmuthara@nsf.gov

Grant Program: IUSE / Professional Formation of Engineers: REvolutionizing engineering and computer science Departments (IUSE/PFE: RED)

Agency: National Science Foundation NSF 16-501

RFP Website:

https://www.nsf.gov/pubs/2017/nsf17501/nsf17501.htm?WT.mc_id=USNSF_25&WT.mc_ev=click

Brief Description: In FY 2017, NSF is continuing a program aligned with the Improving Undergraduate STEM Education (IUSE) framework: *REvolutionizing engineering and computer science Departments*. This funding opportunity enables engineering and computer science departments to lead the nation by successfully achieving significant sustainable changes necessary to overcome longstanding issues in their undergraduate programs and educate inclusive communities of engineering and computer science students prepared to solve 21st century challenges.

In 2014, ENG launched an initiative, the *Professional Formation of Engineers* (PFE), to create and support an innovative and inclusive engineering profession for the 21st century. At the same time, in 2014, NSF launched the agency-wide Improving Undergraduate STEM Education (IUSE) framework, which is a comprehensive effort to accelerate improvements in the quality and effectiveness of undergraduate education in all STEM fields. The RED program was first offered in FY 2015 as a PFE initiative aligned with the IUSE framework. Additional programs have been created within the IUSE framework across NSF, such as the IUSE: EHR program within EHR.

Even as demographic and regional socio-economic factors affect engineering and computer science departments in unique ways, there are certain tenets of sustainable change that are common across institutions. For instance, the development and engagement of the entire faculty within a department are paramount to the process, and faculty must be incentivized. Departmental cultural barriers to change and to inclusion of students *and* faculty from different backgrounds must be identified and addressed. Finally, coherent technical and professional threads must be developed and woven across the four years, especially (1) in the core technical courses of the middle two years, (2) in internship opportunities in the private and public sectors, and (3) in research opportunities with faculty. These and other threads aim to ensure that students develop deep knowledge in their discipline more effectively and meaningfully, while at the same time building their capacities for 21st century and "T-shaped" professional skills, including design, leadership, communication, understanding historical and contemporary social contexts, lifelong learning, professional ethical responsibility, creativity, entrepreneurship, and multidisciplinary teamwork. It is expected that, over time, the awardees of this program will create knowledge concerning sustainable change in engineering and computer science education that can be scaled and adopted nationally across a wide variety of academic institutions. The research on departmental change that results from these projects should inform change more broadly across the STEM disciplines.

Note: The RED program is offered in alignment with the NSF-wide undergraduate STEM education initiative, *Improving Undergraduate STEM Education (IUSE)*. More information about IUSE can be found in the Introduction of this solicitation. The IUSE/PFE: RED program will hereafter be referred to as RED.

Prospective PIs are encouraged to consider the IUSE: EHR program for projects that are outside the scope of RED (see https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505082). Specifically, the Institutional and Community Transformation (ICT) track promotes innovative approaches to using research to catalyze change that addresses challenges across and within institutions (institutional transformation), as well as within and across specific disciplines (community transformation).

Prospective PIs are strongly discouraged from submitting identical or substantially similar proposals to RED and IUUSE: EHR.

Awards: Standard Grants. Anticipated funding amount: \$11,900,000

Letter of Intent: December 09, 2016

Full Proposal Submission Due Date: January 18, 2017

Contacts:

- Kamau Bobb, Program Director, Division of Computer and Network Systems, Directorate for Computer & Information Science & Engineering, telephone: (703) 292-4291, email: kboobb@nsf.gov
 - Elliot Douglas, Program Director, Division of Engineering Education and Centers, Directorate for Engineering, telephone: (703) 292-7051, email: edouglas@nsf.gov
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Grant Program: Data Infrastructure Building Blocks (DIBBs)

Agency: National Science Foundation and National Institutes of Health NSF 17-500

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17500/nsf17500.htm>

Brief Description: The NSF vision for a Cyberinfrastructure Framework for 21st Century Science and Engineering (CIF21) considers an integrated, scalable, and sustainable cyberinfrastructure to be crucial for innovation in science and engineering (see www.nsf.gov/cif21). The Data Infrastructure Building Blocks (DIBBs) program is an integral part of CIF21. The DIBBs program encourages development of robust and shared data-centric cyberinfrastructure capabilities, to accelerate interdisciplinary and collaborative research in areas of inquiry stimulated by data.

DIBBs investments enable new data-focused services, capabilities, and resources to advance scientific discoveries, collaborations, and innovations. The investments are expected to build upon, integrate with, and contribute to existing community cyberinfrastructure, serving as evaluative resources while developments in national-scale access, policy, interoperability and sustainability continue to evolve.

Effective solutions will bring together cyberinfrastructure expertise and domain researchers, to ensure that the resulting cyberinfrastructure address researchers' data needs. The activities should address the data challenges arising in a disciplinary or cross-disciplinary context. (Throughout this solicitation, 'community' refers to a group of researchers interested in solving one or more linked scientific questions, while 'domains' and 'disciplines' refer to areas of expertise or application.) The projects should stimulate data-driven scientific discoveries and innovations, and address broad community needs, nationally and internationally.

This solicitation includes two classes of science data pilot awards:

1. **Early Implementations** are large "at scale" evaluations, building upon cyberinfrastructure capabilities of existing research communities or recognized community data collections, and extending those data-focused cyberinfrastructure capabilities to additional research communities and domains with broad community engagement.
2. **Pilot Demonstrations** address advanced cyberinfrastructure challenges across emerging research communities, building upon recognized community data collections and disciplinary research interests, to address specific challenges in science and engineering research.

Prospective PIs should be aware that DIBBs is a multi-directorate activity, and are encouraged to submit proposals that have broad, interdisciplinary interest. PIs are encouraged to refer to NSF core program descriptions, Dear Colleague Letters, and recently posted initiatives on directorate and divisional home pages to gain insight into the priorities for the relevant area(s) of science and engineering in which their proposals may be responsive. **It is strongly recommended**

that a prospective PI contact a Cognizant Program Officer in the organization(s) closest to the major disciplinary impact of the proposed work to ascertain whether the the scientific focus and budget of the proposed work are appropriate for this solicitation.

Awards: Standard Grants. Anticipated funding amount: \$25,000,000

Letter of Intent: Not Required

Full Proposal Submission Due Date: January 03, 2017

Contacts:

- Amy Walton, Program Director, CISE/ACI, telephone: (703) 292-8970, email:DIBBsQueries@nsf.gov
- Robert Chaddock, Program Director, CISE/ACI, telephone: (703) 292-8970, email:DIBBsQueries@nsf.gov
- Anita Nikolich, Program Director, CISE/ACI, telephone: (703) 292-8970, email:DIBBsQueries@nsf.gov

National Institutes of Health

Grant Program: BD2K Support for Meetings of Data Science Related Organizations (U13)

Agency: National Institutes of Health RFA-CA-16-020

RFP Website: <http://grants.nih.gov/grants/guide/rfa-files/RFA-CA-16-020.html>

Brief Description: The purpose of this Funding Opportunity Announcement (FOA) is to support high quality and impactful conferences/scientific meetings that are convened by data science related organizations whose missions focus on biomedical data science. This FOA, which uses the NIH conference cooperative agreement program (U13), is part of the NIH-wide initiative, Big Data to Knowledge (BD2K). Data science related organizations have a critical role in advancing biomedical data science but often depend on meetings to carry out their work. This FOA will support high quality conferences or meetings that are relevant to the biomedical data science needs of the participating Institutes and Centers of the National Institutes of Health. For the purpose of this FOA, a conference is defined as a gathering, such as in the form of a symposium, seminar, scientific meeting, workshop, or any other organized and formal meeting where persons assemble to coordinate, exchange, and disseminate information, or to explore or clarify a defined subject, problem, or area of knowledge. Applicants representing data science related organizations may request support for one or a series of meetings over multiple years that address areas of data science aligned with the goals of the NIH BD2K program.

Awards: Application budget requests should reflect the actual needs for the proposed meeting(s) but must not exceed \$470,000 annually in direct costs.

Letter of Intent: Not Required

Deadline: December 15, 2016; November 31, 2018, by 5:00 PM local time of applicant organization. All [types of 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: NINDS Ruth L. Kirschstein National Research Service Award (NRSA) for Training of Postdoctoral Fellows (F32)

Agency: National Institutes of Health PAR-16-458

RFP Website: <http://grants.nih.gov/grants/guide/pa-files/PAR-16-458.html>

Brief Description: The purpose of this award is to support outstanding scientific training of highly promising postdoctoral candidates with outstanding mentors. Candidates are eligible to apply for support from this program from ~12 months prior to the start of the proposed postdoctoral position to within 12 months after starting in postdoctoral position. Based on the early timeframe of eligibility, and the discouragement of inclusion of preliminary data, this NINDS F32 seeks to foster early, goal-directed planning and to encourage applications for bold and/or innovative projects by the candidate that have the potential for significant impact. Applications are expected to incorporate strong training in quantitative reasoning and the quantitative principles of experimental design and analysis. Support by this program is limited to the first 3 years of a candidate's activity in a specific laboratory or research environment, so as to further encourage early fellowship application and timely completion of “mentored training” of the postdoctoral candidate in a single environment.

Awards: Individuals may receive up to 3 years of aggregate Kirschstein-NRSA support at the postdoctoral level, including any combination of support from institutional training grants (e.g., T32) and an individual fellowship award. For this FOA, support will be provided only during the first 3 years of cumulative postdoctoral experience in any one particular laboratory or research environment. For example, if an award is made 18 months after the start of the postdoctoral position in the fellowship laboratory or research environment, the award duration will be for a maximum of 18 months.

Letter of Intent: Not Required

Deadline: [Standard dates](#) apply, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: BRAIN Initiative: New Concepts and Early-Stage Research for Large-Scale Recording and Modulation in the Nervous System (R21)

Agency: National Institutes of Health RFA-EY-17-001

RFP Website: <http://grants.nih.gov/grants/guide/rfa-files/RFA-EY-17-001.html>

Brief Description: This FOA is related to sections II.2, II.3, and II.4 from the BRAIN 2025 Report. These three recommendations call for accelerated development of new large-scale recording technologies and tools for neural circuit manipulation. These new technologies and approaches will provide unprecedented opportunities for exploring how the nervous system encodes, processes, utilizes, stores, and retrieves vast quantities of information. A better understanding of this dynamic neural activity will enable researchers to seek new ways to diagnose, treat, and prevent brain disorders.

Achieving these goals requires the ability to record simultaneously from thousands or tens-of-thousands of neurons contributing to the dynamic activity in a neural circuit. The relevant activity may be in clusters of cells packed closely together or may be in widely distributed circuits. Current microelectrode and imaging technologies are limited in the number of cells from which activity can be isolated and sampled simultaneously, by the size or location of the area to be sampled, by the depth of penetration, and by the invasiveness of the technique that might prohibit their use in human experimentation. Non-invasive technologies suitable for use in humans are currently limited in spatial resolution and temporal dynamics, as well as in their reflection of on-going electrical activity in circuit elements. This FOA seeks entirely new ideas, concepts and/or approaches from physics and engineering, and biology, for how these limitations might be overcome to enable increased recording capabilities on the scale of one or more orders of magnitude beyond that of current technology.

Dissecting the function of neural circuits also requires the ability to manipulate neural activity in order to investigate underlying mechanisms and demonstrate causality. Current technologies such as microstimulation and optogenetic approaches are limited in specificity, temporal dynamics, and by the invasiveness of the technique. This FOA also seeks novel ideas for technology capable of manipulating activity in circuits that overcome the limitations of current invasive and non-invasive approaches.

Applications are expected to propose the development of ideas in the earliest stages for entirely new approaches for large-scale neural recording and/or manipulation of neural activity. Such ideas could encompass unique and innovative combinations of existing technology that create a synergistic result. An important goal is to stimulate new thinking and concepts for accelerating development of novel technologies that break current barriers to neural recording and/or manipulation. In addition to experimental approaches, this FOA may support early-stage testing using calculations, simulations, computational models, or other mathematical techniques for demonstrating that the signal sources and/or measurement technologies are theoretically capable of meeting the demands of large-scale recording or manipulation of circuit activity in humans or animal models. The support might also be used for building and testing phantoms, prototypes, in-vitro or other bench-top models in order to validate underlying theoretical assumptions in preparation for future FOAs aimed at proof-of concept testing in animal models. Preliminary data is not expected for ideas in these very early stages of development.

The technologies that would ultimately evolve from these new approaches should be compatible with experiments in humans and/or behaving animals, and should dramatically increase the capacity for recording and manipulating neural activity in order to enable experiments that are currently not possible.

Applications from individuals not usually associated with neuroscience research or teams that cross boundaries forming interdisciplinary collaborations capable of bringing new and untested ideas are particularly encouraged. Accordingly, applicants might consider, where appropriate, multi-PD/PI applications that integrate appropriate expertise, including but not limited to biological, chemical and physical sciences, engineering, computational modeling and statistics.

Awards: The combined budget for direct costs for the two-year project period may not exceed \$300,000. No more than \$200,000 may be requested in any single year.

Letter of Intent: Not Required.

Deadline: December 7, 2016, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on this date.

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

Department of Defense/US Army/DARPA/ONR

Grant Program: DoD USAMRMC FY17 Broad Agency Announcement for Extramural Medical Research

Agency: Department of Defense Dept. of the Army – USAMRAA W81XWH-17-R-BAA1

Website:

<https://www.fbo.gov/index?s=opportunity&mode=form&id=bacdeb99dc1cf27e8dcd920b1fe751ac&tab=core&cview=0>

Brief Description: The USAMRMC mission is to provide solutions to medical problems of importance to the American Service member at home and abroad, as well as to the general public

at large. The scope of this effort and the priorities attached to specific projects are influenced by changes in military and civilian medical science and technology, operational requirements, military threat assessments, and national defense strategies. The extramural research and development programs play a vital role in the fulfillment of the objectives established by the USAMRMC. General information on USAMRMC can be obtained at <http://mrmc.amedd.army.mil/index.cfm>. This FY17 BAA is intended to solicit extramural research and development ideas and is issued under the provisions of the Competition in Contracting Act of 1984 (Public Law 98-369), as implemented in Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016 and in DoD Grant and Agreement Regulations (DoDGARS) 22.315. In accordance with FAR 35.016, projects funded under this BAA must be for basic and applied research to support scientific study and experimentation directed towards advancing the state of the art or increasing knowledge or understanding rather than focusing on development of a specific system or hardware solution. Research and development funded through this BAA are intended and expected to benefit and inform both military and civilian medical practice and knowledge. The selection process is highly competitive and the quantity of meaningful submissions (both pre-proposals/pre-applications and full proposals/applications) received typically exceeds the number of awards that available funding can support. This BAA provides a general description of USAMRMC's research and development programs, including research areas of interest, evaluation and selection criteria, pre-proposal/pre-application and full proposal/application preparation instructions, and general administrative information. Specific submission information and additional administrative requirements can be found in the document titled "General Submission Instructions" available in Grants.gov along with this BAA. **This FY17 BAA is continuously open for a 12-month period, from October 1, 2016 through September 30, 2017, at 11:59 p.m. Eastern Time.** Submission of a pre-proposal/pre-application is required and must be submitted through the electronic Biomedical Research Application Portal (eBRAP) (<https://eBRAP.org/>). Pre-proposals/pre-applications may be submitted at any time throughout the 12-month period. If the USAMRMC is interested in receiving a full proposal/application, the PI will be sent an invitation to submit via eBRAP. A full proposal/application must be submitted through Grants.gov (<http://www.grants.gov/>). Invited full proposals/applications can be submitted under this FY17 BAA through September 30, 2017.

Awards: Various

Deadline: Open until September 30, 2017

Contact: Technical POC: RA Coordinator, DARPA/DSO • Solicitation Email: YFA2017@darpa.mil

Department of Energy

Grant Program: Collaboration Opportunity Notice with the National Energy Technology Laboratory

Agency: Department of Energy DE-FOA-0001687

Website: https://www.fedconnect.net/FedConnect/PublicPages/PublicSearch/Public_OpportunitySummary.aspx

Brief Description: The National Energy Technology Laboratory (NETL) is seeking partners to collaborate on proposals for the development and commercialization of laboratory-proven technologies and approaches for the upcoming 2017 Technology Commercialization Fund (TCF) solicitation. NETL is making this announcement in order to: (1) help, as a part of DOE, notify entities of the upcoming partnership opportunity from OTT; and, (2) invite industry partners to collaborate on commercializing technologies developed by NETL. The TCF is an opportunity which leverages the federal Research & Development (R&D) investments in the applied energy

programs to mature promising energy technologies with the potential of high impact for specific commercial application.

Deadline: November 10, 2016; 8.00 AM Eastern Time

Contact Information: RIC-STRATEGIC-PARTNERS-RFI@NETL.DOE.GOV

Grant Program: Solid State Lighting Advanced Technology R&D 2017

Agency: Department of Energy DE-FOA-0001613

Website: <https://eere-exchange.energy.gov/#Foald68693dde-c993-459d-8763-d3020ab40f6e>

Brief Description: Through engagement with the lighting community, the DOE SSL Program mission is to further scientific understanding on optimizing light spectrum and intensity for numerous application/tasks using semiconductor technologies to save energy while also enhancing human perception, well-being, and commerce. The specific goal of the SSL Program is: *By 2025, develop advanced SSL technologies that - compared to conventional lighting technologies - are much more energy efficient, longer lasting, and cost competitive, by targeting a product system efficiency of 50 percent with appropriate application spectrum.*

The objectives of this funding opportunity are to:

- Maximize the energy-efficiency of SSL products in the marketplace;
- Remove market barriers through improvements to lifetime, color quality, and lighting system performance;
- Reduce costs of SSL sources and luminaires;
- Improve product consistency while maintaining high quality products; and
- Encourage the growth, leadership, and sustainability of domestic U.S. manufacturing within the SSL industry

Deadline: January 10, 2017

Contact Information: exchangehelp@hq.doe.gov

NASA

Grant Program: ROSES 2016: Habitable Worlds

Agency: NASA NNH16ZDA001N-HW

Website:

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={F1737210-F765-98EF-34A8-1C42434C709D}&path=init>

Brief Description: The goal of the Habitable Worlds program is to use knowledge of the history of the Earth and the life upon it as a guide for determining the processes and conditions that create and maintain habitable environments and to search for ancient and contemporary habitable environments and explore the possibility of extant life beyond the Earth. NASA's Habitable Worlds Program includes elements of the Astrobiology Program, the Mars Exploration Program, the Outer Planets Program (all in the Planetary Science Division) and Exoplanet research in the Astrophysics Division. A common goal of these programs is to identify the characteristics and the distribution of potentially habitable environments in the Solar System and beyond. This research is conducted in the context of NASA's ongoing exploration of our stellar neighborhood and the identification of biosignatures for in situ and remote sensing applications. For further information on the science scope of Astrobiology, please refer to the Astrobiology roadmap, which can be found on the Astrobiology web page <http://astrobiology.nasa.gov/>. Information on the habitability-related goals of the Mars Exploration Program can be found in the "Mars Science Goals, Objectives, Investigations and Priorities: 2010" document, available on the

Mars Exploration Program Analysis Group web page (<http://mepag.jpl.nasa.gov>). For the Outer Planets Program, refer to the document "Scientific Goals and Pathways for Exploration of the Outer Solar System," found on the Outer Planets Assessment Group web site (<http://www.lpi.usra.edu/opag>). Theoretical and experimental studies will be considered, as well as quantitative terrestrial field experiments that improve scientific understanding of how in situ measurements at analog sites can or will improve our understanding of the potential for the environment to support life. Research areas include, but are not limited to, the presence of water and/or exotic solvents, sources of energy for life, presence of organics and their reactivity, and water body physics and chemistry as they pertain to habitability and habitability over time.

Awards: ~ \$2.0 M

Proposal Deadline: Step-1 Proposal: November 18, 2016

Contact: Mitch Schulte, Planetary Science Division, NASA Headquarters

Telephone: (202) 358-2127, E-mail: mitchell.d.schulte@nasa.gov
