

NJIT Research Newsletter

Issue: ORN-2017-24

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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Special Announcements

2017/2018 Institutional Review Board (IRB) Meeting Schedule for Approval of Human Subjects in Research

IRB application forms must be received by the IRB at least 7 business days before the meeting to ensure enough time for accurate review. If it is received after that, it will reviewed at the following month's meeting.

- Thursday, August 3, 2017
- Tuesday, September 12, 2017
- Tuesday, October 10, 2017
- Tuesday, November 7, 2017
- Tuesday, December 5, 2017
- Tuesday, February 6, 2018
- Tuesday, March 6, 2018
- Tuesday, April 10, 2018
- Tuesday, May 8, 2018

More information about IRB forms and process is posted on the research website <http://www.njit.edu/research/compliance/review-board/>

2017 - 2018 Institutional Biosafety Committee (IBC) Meeting Schedule

IBC application forms must be submitted at least 10 business days before the next meeting date. Submit your forms to IBC@njit.edu.

- Tuesday, September 26, 2017
- Tuesday, November 28, 2017
- Tuesday, February 20, 2018
- Tuesday, April 24, 2018

More information about IBC forms and process is posted on the research website <http://www.njit.edu/research/compliance/biosafety-committee.php>

Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: Division of Materials Research: Topical Materials Research Programs (DMR-TMRP); Louis Stokes Alliances for Minority Participation (LSAMP); Emerging Frontiers in Research and Innovation 2018 (EFRI-2018); Secure and Trustworthy Cyberspace (SaTC); Advancing Informal STEM Learning (AISL); Information and Intelligent Systems (IIS): Core Programs; Computing and Communication Foundations (CCF): Core Programs; Computer and Network Systems (CNS)

NIH: BRAIN Initiative: New Concepts and Early - Stage Research for Large - Scale Recording and Modulation in the Nervous System (R21); Central Neural Mechanisms of Age-Related Hearing Loss (R01); Small Grants on Primary Immunodeficiency Diseases (R03); Notice of Intent to Publish a Funding Opportunity Announcement for Point of Care Technologies Research Network Centers (U54); Biomedical Technology Research Resource (P41)

Department of Defense/US Army/DARPA/ONR: DoD, Peer Reviewed Alzheimer's Research; FY2018 Basic Research Challenge (BRC) Program; CENTER OF EXCELLENCE: Trusted Human-Machine Teaming; FY2018 Vannevar Bush Faculty Fellowship

Department of Energy: Advanced Manufacturing Graduate-Level Traineeships; Photovoltaics (PV) Innovation Roadmap; Technology Development to Ensure Environmentally Sustainable CO2 Injection Operations

NASA: ROSES 2017: Solar Irradiance Science Team; ROSES 2017: New Investigator Program

National Endowment of Humanities: Summer Stipends; Research and Development Grants

Burroughs Welcome Fund: BWF's Career Awards at the Scientific Interface

Alfred P. Sloan Foundation: Alfred P. Sloan Foundation Grants

Streamlyne: Contact Information

Recent Research Grant and Contract Awards

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

PI: Dale Gary (PI) and Bin Chen (Collaborator)

Department: Center for Solar Terrestrial Research

Grant/Contract Project Title: Dedicated Radio Imaging and Magnetic Field Measurements of the Sun

Funding Agency: NSF

Duration: 09/15/16-08/31/19

PI: Cristiano Dias (PI)

Department: Physics

Grant/Contract Project Title: Role of Methanol in Methane Clathrate Formation

Funding Agency: American Chemical Society

Duration: 09/01/17-08/31/19

PI: Kamalesh Sirkar (PI)
Department: Chemical, Biological and Pharmaceutical Engineering
Grant/Contract Project Title: Novel Nanofiltration Membranes for Isolation of Pharmaceutical Compounds
Funding Agency: Compact Membrane Systems, Inc.
Duration: 07/01/17-06/30/18

PI: Jay Meegoda (PI)
Department: Civil and Environmental Engineering
Grant/Contract Project Title: REU Supplement - Remediation of Contaminated Sediments with Ultrasound and Ozone Nano-bubbles
Funding Agency: NSF
Duration: 09/01/16-08/31/19

PI: Bruno Goncalves da Silva (PI)
Department: Civil and Environmental Engineering
Grant/Contract Project Title: Effect of the Triaxial State of Stress in the Connectivity of Hydraulically-created Fractures in Crystalline Rocks
Funding Agency: NSF
Duration: 09/01/17-08/31/18

PI: Mohamed Mahgoub (PI)
Department: Engineering Technology
Grant/Contract Project Title: Impact of Extended Mixing Time on Concrete Durability and Performance
Funding Agency: RMC Research & Education Foundation
Duration: 07/13/17-07/31/18

PI: Treena Arinzeh (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: PFI: AIR - TT: Electroactive Scaffold for Cartilage Regeneration: A Proof of Concept Study"
Funding Agency: NSF
Duration: 07/15/17-12/31/18

PI: Bharat Biswal (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: CRCNS: Deciphering the laminar-specific functional connectivity and its vascular and neural correlates
Funding Agency: NIH
Duration: 08/01/17-07/31/18

PI: David Shirokoff (PI)
Department: Mathematical Sciences
Grant/Contract Project Title: Collaborative Research: Overcoming order reduction and stability restrictions in high-order time-stepping
Funding Agency: NSF

Duration: 08/01/17-07/31/20

PI: Edward Dreizin (PI)

Department: Chemical, Biological and Pharmaceutical Engineering

Grant/Contract Project Title: Kinetics of Coal Pyrolysis

Funding Agency: Encina Solutions LLC

Duration: 07/13/17-02/28/18

PI: Siva Nadimpalli (PI)

Department: Mechanical and Industrial Engineering

Grant/Contract Project Title: Mechanics of Binder-Particle Interaction in Composite Battery Electrodes

Funding Agency: U.S. Department of Defense (ONR)

Duration: 04/01/17-05/31/19

PI: Kamalesh Sirkar (PI)

Department: Chemical, Biological and Pharmaceutical Engineering

Grant/Contract Project Title: Novel Membrane-Based Fabrics and Materials for Chemical and Biological Protection

Funding Agency: U.S. Department of Defense (DTRA)

Duration: 04/07/16-04/06/19

In the News...

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

Defense MINIBUS Bill: House Republican leaders are fine-tuning strategy on a spending bill "minibus" that they plan to put to a vote by the August recess, which is expected to contain four appropriations measures and items from others. House GOP leaders plan in the coming week to bring up a so-called minibus ([see text](#)) containing: the \$658 billion FY 2018 Defense spending bill; the \$37.5 Energy-Water measure; the \$88.8 billion Military Construction and Veterans Affairs bill; and the \$3.58 Legislative Branch bill. More on the website <https://www.bna.com/defense-minibus-readied-n73014461999/>

STEM and Manufacturing: "Manufacturing engineering education is critically important to sustaining and advancing the manufacturing industrial base," which "needs to be revitalized," the panel says, authorizing \$94.3 million for the effort. The committee also provides \$27.9 million for the training and education in STEM fields of minority women at historically black colleges and universities, "particularly through research funding, fellowships, and internships and cooperative work experiences at Defense laboratories." Finding a bright spot in K-12 education, the committee notes a striking improvement in advanced-placement scores among military schools that adopted "innovative and evidence-based efforts" to improve STEM learning. More information on <https://www.congress.gov/115/crpt/srpt125/CRPT-115srpt125.pdf>

Clean Energy and Fusion: The Committee recommends \$167.5 million for solar; \$72.5 million for wind; and \$82 million for water power. Contrary to the administration's shift to early-stage R&D, it says "such an approach will not successfully integrate the results of early-stage research and

development into the U.S. energy system." The panel says it "understands the Department has either delayed or does not intend to initiate a renewal for the Batteries and Energy Storage Hub, the Joint Center for Energy Storage Research [JCESR]. The Committee directs the Department to move forward with the review and renewal process to support the next 5-year charter for next-generation battery and storage technologies" and provides \$24 million for the hub. While providing \$232 million for fusion, the panel seeks once again to zero out America's contribution to the International Thermonuclear Experimental Reactor being built in France. With House support, ITER has survived in the past. The committee calls on DOE to identify strategic laboratory, university, and industry partnerships that would enhance national security and assist industry in addressing critical threats, including electromagnetic pulse, geomagnetic disturbances, cyber-attacks, and supply chain disruptions. The panel "continues to encourage the Department to establish university partnerships to support ongoing fossil energy programs, to promote broader research into CCS technologies, and to expand its technology transfer efforts." More information on <https://www.congress.gov/115/crpt/srpt125/CRPT-115srpt125.pdf>

A Matter of Ethics: ASEE was well represented at an Academies workshop on **Infusing Ethics into the Development of Engineers** by, among others, Executive Director Norman Fortenberry, retired Public Affairs Director Bill Kelly, and Advances in Engineering Education Editor Larry Shuman. According to the report, "Fortenberry summarized many of the theoretical and practical conclusions of the workshop and identified many lingering questions. . . . 'I think we're spending too much time tinkering around the edges, when what we need is a movement toward much more radical change,' Fortenberry said. 'We need to move engineering departments to a team concept, no longer requiring each individual faculty member to be expert at an ever-expanding number of expectations. . . . We need to more broadly hire engineering faculty for their specialized knowledge of ethics and communication and other professional skills.'" Report is posted on the website <https://www.nap.edu/catalog/24821/overcoming-challenges-to-infusing-ethics-into-the-development-of-engineers>

Next Generation Researchers Initiative: NIH has launched the Next Generation Researchers Initiative to bolster support for early-stage and mid-career investigators to address longstanding challenges faced by researchers trying to embark upon and sustain independent research careers. NIH and its stakeholder community have for many years been concerned about the long-term stability of the biomedical research enterprise. Too many researchers vying for limited resources has led to a hypercompetitive environment. Many highly meritorious applications go unfunded. This has too often resulted in misaligned incentives and unintended consequences for talented researchers at all career stages who are trying to succeed and stay in science. The current environment is particularly challenging for many new- and mid-career investigators.

Over the last several years, NIH has taken numerous steps to balance, strengthen, and stabilize the biomedical research workforce.

- [Special council review policy](#)
- [New Investigator/Early Stage Investigator Policies](#)
- [Initiatives from the Advisory Council to the NIH Director](#)
- [Programs for early-stage investigators](#)
- [New funding mechanisms for sustained research funding \(R35\)](#)

To ensure the long-term stability and strength of the U.S. biomedical research enterprise, the pool of NIH-funded researchers must be balanced such that the greatest number of early stage

and mid-career researchers are enabled to tackle tough research questions to improve the health of all Americans. This conclusion is widely shared both within and outside of NIH. In fact, the 21st Century Cures Act, which became law in December of 2016, instructs the NIH Director to promote policies that will encourage earlier independence and increased funding for new investigators. More information on the website <https://grants.nih.gov/ngri.htm> A PowerPoint presentation from the advisory council is posted on the website <https://acd.od.nih.gov/documents/presentations/06082017Tabak.pdf>

NSF Policy and Awards Update (May 2017): NSF Pilots a New Collaborator and Other Affiliations Template: Last month NSF began piloting a new format for submitting Collaborators and Other Affiliations Information in FastLane. Proposers are required to include collaborators and other affiliations information for principal investigators (PIs), co-PIs and other senior project personnel. NSF uses this information to manage reviewer selection. The pilot standardizes the collection of this data across the Foundation and ensures that the information is submitted in a searchable format. This reduces the burden on NSF program staff who currently must spend time manipulating non-searchable files. Likewise, for the community, proposers can rest assured knowing that their format is acceptable to NSF. The new format requires PIs, co-PIs and other senior project personnel who are identified on the proposal to individually upload their Collaborators and Other Affiliations Information as a Single Copy Document which are only seen by NSF staff and not by reviewers.

Proposers will be directed to the new spreadsheet template while in FastLane. The template is fillable, and the content and format requirements must not be altered by the user. Proposers should not convert the file to PDF format prior to submitting the proposal to NSF, rather it should be completed and saved in .xlsx or .xls format to ensure preservation of searchable text, and uploaded into FastLane as a Single Copy Document. Using any other file format may delay the timely processing and review of the proposal. The template has been tested in Microsoft Excel, Google Sheets and LibreOffice. In addition to benefiting the merit review process, this template provides a compliant and reusable format for PIs to maintain and update for use in subsequent proposal submissions to NSF. The new Collaborators and Other Affiliations pilot only applies to FastLane proposal submissions. Grants.gov proposal submissions shall continue to follow the instructions in the Grants.gov Application Guide, Chapter VI. 2.4. More information on https://www.nsf.gov/pubs/2017/nsf17084/nsf17084.pdf?WT.mc_id=USNSF_109

Webinar and Events

Event: IEEE Tech Insider Webinar: Low Current / Ultra-High Resistance Measurement Fundamentals

When: August 10, 2017; 1.00 PM

Website:

<https://event.on24.com/eventRegistration/EventLobbyServlet?target=reg20.jsp&referrer=&eventid=1463381&sessionid=1&key=0E6BDE38E441621A6CDA92B4F8716264®Tag=&sourcepage=register>

About the Webinar: Performing current vs. voltage characterization on devices and materials at very low current levels presents a unique set of measurement challenges. Normal measurement issues such as noise, transient signals and cabling and fixturing parasitics are much harder to solve when dealing with currents in the femtoamp range. In addition, many cutting-edge materials

have extremely high resistances that conventional DMMs and source/measurement units (SMUs) cannot measure. In this seminar Keysight will explain the measurement techniques, tricks and tools necessary to measure currents down to 0.01 femtoamps and resistances up to 10 Peta Ohms with both high measurement confidence and repeatability.

Speaker: Alan Wadsworth, Marketing Brand Manager, Keysight

Register at: Above URL.

Event: IEEE Webinar: Advanced Data Acquisition and Logging Systems

When: Available on Demand

Website:

https://event.on24.com/eventRegistration/EventLobbyServlet?target=reg20.jsp&utm_source=Tech%2BAAlert&utm_medium=Email&utm_campaign=TechAlert_07-06-17&eventid=1433462&sessionid=1&key=9BF06E3E1B2B31C7FAE1E9C5CF16298A®Tag=&sourcepage=register

About the Webinar: It is difficult to envision an industrial automation application that does not include a data acquisition system. Most applications include sensor data that must be acquired, analyzed, and logged, using acquisition (DAQ) systems that can be as diverse as the sensors themselves. With the rise of the Internet of Things, DAQ requirements are becoming even more strict, bringing new challenges. Today's data acquisition systems should perform analysis in real time, work with large amounts of analog data, and make decisions based on those results. The importance of a robust, real-time, decision-making, signal-processing system FPGA platforms the best fit for many such applications. Designers of DAQ systems need to consider scalability, portability, and stable operation. At this session, we will explore the main challenges and best practices in data-logging system design, particularly in the LabVIEW environment. The webinar examines the underlying implementation of an object-oriented approach to application design, DAQ tips and tricks for FPGA platforms, and an object-oriented programming architecture for real-time and host applications. The session also explores several case studies of developed DAQ systems, showing the main challenges faced and the solutions implemented in the projects.

Register at: Above URL.

Grant Opportunities

National Science Foundation

Grant Program: Division of Materials Research: Topical Materials Research Programs (DMR-TMRP)

Agency: National Science Foundation NSF 17-580

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17580/nsf17580.htm>

Brief Description: Research supported by the Division of Materials Research (DMR) focuses on advancing fundamental understanding of materials, materials discovery, design, synthesis, characterization, properties, and materials-related phenomena. DMR awards enable understanding of the electronic, atomic, and molecular structures, mechanisms, and processes that govern nanoscale to macroscale morphology and properties; manipulation and control of these properties; discovery of emerging phenomena of matter and materials; and creation of novel design, synthesis, and processing strategies that lead to new materials with unique characteristics. These discoveries and advancements transcend traditional scientific and engineering disciplines. The Division supports research and education activities in the United States through funding of individual

investigators, teams, centers, facilities, and instrumentation. Projects supported by DMR are essential for the development of future technologies and industries that meet societal needs, as well preparation of the next generation of materials researchers.

This solicitation applies to the following six DMR Topical Materials Research Programs that fund research and educational projects by individual investigators or small groups: Biomaterials (BMAT), Condensed Matter Physics (CMP), Electronic and Photonic Materials (EPM), Metals and Metallic Nanostructures (MMN), Polymers (POL), and Solid-State and Materials Chemistry (SSMC). It does not apply to the following two DMR Topical Materials Research Programs, which have their own solicitations: Ceramics (CER) ([NSF 16-597](#)) and Condensed Matter and Materials Theory (CMMT) ([NSF 16-596](#)).

Awards: Standard Grants. **Anticipated Funding Amount:** \$55,000,000

Letter of Intent: Not Required

Proposal Submission Due Date: October 1, 2017 - November 1, 2017

Contacts: Joseph A. Akkara, Biomaterials (BMAT), telephone: (703) 292-4946, email: jakkara@nsf.gov

- Aleksandr L. Simonian, Biomaterials (BMAT), telephone: (703) 292-2191, email: asimonia@nsf.gov
- Tomasz Durakiewicz, Condensed Matter Physics (CMP), telephone: (703) 292-4892, email: tdurakie@nsf.gov
- Paul E. Sokol, Condensed Matter Physics (CMP), telephone: (703) 292-8436, email: psokol@nsf.gov

Grant Program: Louis Stokes Alliances for Minority Participation (LSAMP)

Agency: National Science Foundation NSF 17-579

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17579/nsf17579.htm>

Brief Description: The Louis Stokes Alliances for Minority Participation (LSAMP) program is an alliance-based program. The program's theory is based on the Tinto model for student retention¹. The overall goal of the program is to assist universities and colleges in diversifying the nation's science, technology, engineering and mathematics (STEM) workforce by increasing the number of STEM baccalaureate and graduate degrees awarded to populations historically underrepresented in these disciplines: African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders. The LSAMP program takes a comprehensive approach to student development and retention. Particular emphasis is placed on transforming undergraduate STEM education through innovative, evidence-based recruitment and retention strategies, and relevant educational experiences in support of racial and ethnic groups historically underrepresented in STEM disciplines.

The LSAMP program also supports knowledge generation, knowledge utilization, program impact and dissemination type activities. The program seeks new learning and immediate diffusion of scholarly research into the field. Under this program, funding for STEM educational and broadening participation research activities could include research to develop new models in STEM engagement, recruitment and retention practices for all critical pathways to STEM careers or research on interventions such as mentoring, successful learning practices and environments, STEM efficacy studies, and technology use.

Overall, the LSAMP program provides funding to alliances that implement comprehensive, evidence-based, innovative, and sustained strategies that ultimately result in the graduation of well-prepared, highly-qualified students from.

Awards: Standard Grants. **Anticipated Funding Amount:** \$22,300,000

Letter of Intent: Not Required

Proposal Submission Due Date:

November 03, 2017

First Friday in November, Annually Thereafter

Bridge to the Doctorate (BD) Activity

November 17, 2017

Third Friday in November, Annually Thereafter

New and Renewal LSAMP Pre-Alliance Planning, Bridge to the Baccalaureate (B2B), STEM Pathways Implementation-Only Projects

January 26, 2018

STEM Pathways and Research Alliances

January 26, 2018

Last Friday in January, Annually Thereafter

Louis Stokes Regional Centers of Excellence in Broadening Participation

November 16, 2018

Third Friday in November, Annually Thereafter

STEM Pathways and Research Alliances

Contacts: LSAMP Program Team, telephone: (703) 292-8640, fax: (703) 292-9018, email: LSAMP_national@nsf.gov

- A. James Hicks, Co-Lead/Program Director, 815 N, telephone: (703) 292-4668, email: ahicks@nsf.gov
 - Martha L. James, Co-Lead/Program Director, telephone: (703) 292-7772, email: mjames@nsf.gov
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Grant Program: Emerging Frontiers in Research and Innovation 2018 (EFRI-2018)

Agency: National Science Foundation NSF 17-578

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17578/nsf17578.htm>

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

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

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

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

Engineering Frontiers of Soft Robotics

While proficient at repetitive tasks in a structured environment, traditional rigid robots fall far short of biological organisms in versatility and adaptability. To create robots that can achieve the remarkable functionality seen in the animal kingdom, or that can be physically worn by or implanted in humans, will require a re-engineering of power and information systems, the creation of new materials, and the formulation of new theories of movement and manipulation.

Robots with the mix of mobility, strength, and dexterity found in the natural world would allow unprecedented extension of human perception and action to inaccessible and hostile environments. Furthermore, wearable or implantable soft robots could mitigate disability or augment the natural abilities of the human body.

Driven by collaborations between experts in engineering, computer science, biology, material science, chemistry, and mathematics, a new field of soft robotics is emerging to meet these challenges, characterized by the use of highly compliant materials and structures.

While exciting soft robotics demonstrations abound, a fundamental engineering framework is needed to fully realize the promise of these pioneering results. Such a framework should include the following:

- **mathematical representations** of highly compliant structures, and structures with extended soft interfaces suitable for real-time planning and control,
- **novel devices and architectures** for distributed computation, sensing, and actuation, including hybrid devices combining synthetic materials and living tissue, and including the means for storing and distributing power and information, and
- **robust physical platforms** for experimental model validation and rigorous proofs of concept.

INFORMATIONAL WEBCAST: The Emerging Frontiers and Multidisciplinary Activities (EFMA) Office will host an informational webinar on September 7th, 2017 at 1:00 PM EST to discuss the EFRI program and answer questions about the FY 2018 solicitation. Details on how to join this webinar will be posted on the [EFMA Website](#).

Awards: Standard Grants. **Anticipated Funding Amount:** \$26,000,000

Letter of Intent: Required

Preliminary Proposal: Required

Proposal Submission Due Date:

- **Letter of Intent Due Date(s) (required)** (due by 5 p.m. submitter's local time):

September 29, 2017

- **Preliminary Proposal Due Date(s) (required)** (due by 5 p.m. submitter's local time):

October 25, 2017

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

February 23, 2018

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

- Kerstin Mukerji, Program Manager, ENG/EFMA, telephone: (703) 292-5390, email: kmukerji@nsf.gov
- TOPIC 1, Chromatin and Epigenetic Engineering (CEE), telephone: (703) 292-7942, email: lesterow@nsf.gov
- Leon Esterowitz, Program Director, ENG/CBET, telephone: (703) 292-7942, email: lesterow@nsf.gov

Grant Program: Secure and Trustworthy Cyberspace (SaTC)

Agency: National Science Foundation NSF 17-576

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17576/nsf17576.htm>

Brief Description: In today's increasingly networked, distributed, and asynchronous world, cybersecurity involves hardware, software, networks, data, people, and integration with the physical world. However, society's overwhelming reliance on this complex cyberspace has exposed its fragility and vulnerabilities: corporations, agencies, national infrastructure and individuals have

been victims of cyber-attacks. Achieving a truly secure cyberspace requires addressing both challenging scientific and engineering problems involving many components of a system, and vulnerabilities that arise 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 goals of the Secure and Trustworthy Cyberspace (SaTC) program are aligned with the [Federal Cybersecurity Research and Development Strategic Plan](#) (RDSP) and the [National Privacy Research Strategy](#) (NPRS) to protect and preserve the growing social and economic benefits of cyber systems while ensuring security and privacy. The RDSP identified six areas critical to successful cybersecurity R&D: (1) scientific foundations; (2) risk management; (3) human aspects; (4) transitioning successful research into practice; (5) workforce development; and (6) enhancing the research infrastructure. The NPRS, which complements the RDSP, identifies a framework for privacy research, anchored in characterizing privacy expectations, understanding privacy violations, engineering privacy-protecting systems, and recovering from privacy violations. In alignment with the objectives in both strategic plans, the SaTC program takes an interdisciplinary, comprehensive and holistic approach to cybersecurity research, development, and education, and encourages the transition of promising research ideas into practice.

The SaTC program welcomes proposals that address cybersecurity and privacy, and draw on expertise in one or more of these areas: computing, communication and information sciences; engineering; economics; education; mathematics; statistics; and social and behavioral sciences. **Proposals that advance the field of cybersecurity and privacy within a single discipline or interdisciplinary efforts that span multiple disciplines are both encouraged.**

Proposals may be submitted in one of the following three project size classes:

- Small projects: up to \$500,000 in total budget, with durations of up to three years;
- Medium projects: \$500,001 to \$1,200,000 in total budget, with durations of up to four years;
- Frontier projects: \$5,000,000 to \$10,000,000 in total budget, with durations of up to five years.

In addition to the project size classes, proposals must be submitted pursuant to one of the following designations, each of which may have additional restrictions and administrative obligations as specified in this program solicitation.

- CORE: This designation is the main focus of the SaTC research program, spanning the interests of NSF's Directorates for Computer and Information Science and Engineering (CISE), Engineering (ENG), Mathematical and Physical Sciences (MPS), and Social, Behavioral and Economic Sciences (SBE). Interdisciplinary proposals are welcomed to CORE.
- EDU: The Education (EDU) designation will be used to label proposals focusing entirely on cybersecurity education. *Note that proposals that are designated as EDU have budgets limited to \$300,000 and durations of up to two years.*
- STARSS: The Secure, Trustworthy, Assured and Resilient Semiconductors and Systems (STARSS) designation will be used to label proposals that are submitted to the joint program focused on hardware security with the Semiconductor Research Corporation (SRC). *The STARSS designation may only be used for Small proposals. This designation has additional administrative obligations.*
- TTP: The Transition to Practice (TTP) designation will be used to label proposals that are focused exclusively on transitioning existing research results to practice. *The TTP designation may only be used for Small and Medium proposals.*

Awards: Standard Grants. **Anticipated Funding Amount:** \$68,000,000

Letter of Intent: Not Required

Proposal Submission Due Date:

October 03, 2017 - October 10, 2017

MEDIUM Projects

October 13, 2017 - October 20, 2017

FRONTIER Projects

November 01, 2017 - November 15, 2017

SMALL Projects

December 06, 2017 - December 13, 2017

CYBERSECURITY EDUCATION Projects

Contacts: Nina Amla, Program Director, CISE/CCF, 1110, telephone: (703) 292-8910, email: namla@nsf.gov

- Dan Cosley, Program Director, CISE/IIS, 1125, telephone: (703) 292-8491, email: dcosley@nsf.gov
 - Sol Greenspan, Program Director, CISE/CCF, 1115, telephone: (703) 292-8910, email: sgreensp@nsf.gov
 - Timothy Hodges, Program Director, MPS/DMS, 1020, telephone: (703) 292-2113, email: thodges@nsf.gov
-

Grant Program: Advancing Informal STEM Learning (AISL)

Agency: National Science Foundation NSF 17-573

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17573/nsf17573.htm>

Brief Description: The **Advancing Informal STEM Learning (AISL)** program seeks to advance new approaches to and evidence-based understanding of the design and development of STEM learning opportunities for the public in informal environments; provide multiple pathways for broadening access to and engagement in STEM learning experiences; advance innovative research on and assessment of STEM learning in informal environments; and engage the public of all ages in learning STEM in informal environments.

The AISL program supports six types of projects: (1) Pilots and Feasibility Studies, (2) Research in Service to Practice, (3) Innovations in Development, (4) Broad Implementation, (5) Literature Reviews, Syntheses, or Meta-Analyses, and (6) Conferences.

Awards: Standard Grants. **Anticipated Funding Amount:** \$33,000,000

Limit on Number of Proposals per Organization: 3

An institution or organization may serve as lead on no more than three (3) proposals submitted to the November deadline. However, an institution or organization may partner as a subaward on other proposals submitted. Please inform the Office of Vice Provost for Research at dhawan@njit.edu by **September 1, 2017** with a summary including Intellectual Merit and Broader Impact sections if you intend to submit a proposal to this solicitation.

Letter of Intent: Not Required

Proposal Submission Due Date: November 06, 2017

Contacts: Address Questions to the Program, telephone: (703)292-8616, email: DRLAISL@nsf.gov

Grant Program: Information and Intelligent Systems (IIS): Core Programs

Agency: National Science Foundation NSF 17-572

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17572/nsf17572.htm>

Brief Description: CISE's Division of Information and Intelligent Systems (IIS) supports research and education projects that develop new knowledge in three **core programs**:

- The Cyber-Human Systems (CHS) program;
- The Information Integration and Informatics (III) program; and
- The Robust Intelligence (RI) program.

Proposals in the area of computer graphics and visualization may be submitted to any of the three core programs described above.

Proposers are invited to submit proposals in three project classes, which are defined as follows:

- Small Projects - up to \$500,000 total budget with durations up to three years;
- Medium Projects - \$500,001 to \$1,200,000 total budget with durations up to four years; and
- Large Projects - \$1,200,001 to \$3,000,000 total budget with durations up to five years.

A more complete description of the three project classes can be found in Section II. *Program Description* of this document.

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

Letter of Intent: Not Required

Proposal Submission Due Date:

September 20, 2017 - September 27, 2017

MEDIUM Projects

September 20, 2017 - September 27, 2017

LARGE Projects

November 01, 2017 - November 15, 2017

SMALL Projects

Contacts: William S. Bainbridge, Point of Contact, Cyber-Human Systems (CHS), 1125, telephone: (703) 292-8930, email: wbainbri@nsf.gov

- James Donlon, Point of contact, Robust Intelligence (RI), 1122, telephone: (703) 292-8074, email: jdonlon@nsf.gov
- Ephraim P. Glinert, Point of Contact, Cyber-Human Systems (CHS), 1125, telephone: (703) 292-8930, email: eglinert@nsf.gov
- Tatiana Korelsky, Point of Contact, Robust Intelligence (RI), 1125, telephone: (703) 292-8930, email: tkorelsk@nsf.gov

Grant Program: Computing and Communication Foundations (CCF): Core Programs

Agency: National Science Foundation NSF 17-571

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17571/nsf17571.htm>

Brief Description: CISE's Division of Computing and Communication Foundations (CCF) supports research and education projects that develop new knowledge in three core programs:

- The Algorithmic Foundations (AF) program;
- The Communications and Information Foundations (CIF) program; and
- The Software and Hardware Foundations (SHF) program.

Proposers are invited to submit proposals in two project classes, which are defined as follows:

- Small Projects - up to \$500,000 total budget with durations up to three years; and
- Medium Projects - \$500,001 to \$1,200,000 total budget with durations up to four years.

A more complete description of the two project classes can be found in section II. *Program Description* of this document.

CCF proposals must be in the Small or Medium classes only.

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

Letter of Intent: Not Required

Proposal Submission Due Date:

September 20, 2017 - September 27, 2017

MEDIUM

November 01, 2017 - November 15, 2017

SMALL

Contacts: Almadena Y. Chtchelkanova, Point of Contact, Software and Hardware Foundations (SHF), 1115, telephone: (703) 292-8910, email: achtchel@nsf.gov

- Tracy Kimbrel, Point of Contact, Algorithmic Foundations (AF), 1115, telephone: (703) 292-8910, email: tkimbrel@nsf.gov
 - Phillip Regalia, Point of Contact, Communications and Information Foundations (CIF), 1115, telephone: (703) 292-8910, email: pregalia@nsf.gov
-

Grant Program: Computer and Network Systems (CNS): Core Programs

Agency: National Science Foundation NSF 17-570

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17570/nsf17570.htm>

Brief Description: CISE's Division of Computer and Network Systems (CNS) supports research and education projects that develop new knowledge in two core programs:

- Computer Systems Research (CSR) program; and
- Networking Technology and Systems (NeTS) program.

Proposers are invited to submit proposals in three project classes, which are defined as follows:

- Small Projects - up to \$500,000 total budget with durations up to three years;
- Medium Projects - \$500,001 to \$1,200,000 total budget with durations up to four years; and
- Large Projects - \$1,200,001 to \$3,000,000 total budget with durations up to five years.

CSR proposals must be in the Small or Medium classes only; NeTS proposals may be in the Small, Medium, or Large class.

A more complete description of the three project classes can be found in Section II. *Program Description* of this document.

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

Letter of Intent: Not Required

Proposal Submission Due Date:

September 20, 2017 - September 27, 2017

MEDIUM Projects

September 20, 2017 - September 27, 2017

LARGE Projects

November 01, 2017 - November 15, 2017

SMALL Projects

Contacts: Jack Brassil, NeTS Program Director, 1175, telephone: (703) 292-8950, email: jbrassil@nsf.gov

- Darleen L. Fisher, NeTS Program Director, 1175, telephone: (703) 292-8950, email: dlfisher@nsf.gov
 - Samee U. Khan, CSR Program Director, 1175, telephone: (703) 292-8950, email: skhan@nsf.gov
 - Sandip Kundu, CSR Program Director, 1175, telephone: (703) 292-8950, email: skundu@nsf.gov
 - Mimi McClure, CSR Associate Program Director, 1175, telephone: (703) 292-8950, email: mmcclure@nsf.gov
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National Institutes of Health

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-17-002

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-EY-17-002.html>

Brief Description: This FOA is related to the recommendations in 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 ongoing 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.

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. Dissecting the function of neural circuits 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.

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.

Applications are expected to propose research that will explore ideas in their earliest stages of development in order to be responsive to goals and objectives of this FOA. Some examples of non-responsive applications might be: i) further development of existing technology; ii) hypothesis-testing; iii) validation and/or refinement of current technology; or iv) development

of analytical methods to be applied to existing technology and/or data. Applications proposing work that does not meet the goals of this FOA will be deemed non-responsive and will not be reviewed.

Awards: The combined direct cost budget 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: October 26, 2017, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on this date.

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

Grant Program: Central Neural Mechanisms of Age-Related Hearing Loss (R01)

Agency: National Institutes of Health RFA-AG-18-017

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-AG-18-017.html>

Brief Description: This FOA encourages applications investigating the central neural mechanisms of age-related hearing loss. Studies that explore the neural changes that occur with 'natural' aging from the inner ear, along the auditory pathway to the auditory cortex are highly encouraged. Investigators may employ a variety of approaches including cellular, molecular, imaging, physiological and genetic to address this area of research. Applications focused on the design of hearing aids and hearing assistive technologies will be deemed non-responsive to this FOA and will not proceed to review. Applications proposing clinical trials will not be accepted under this FOA.

Studies of interest may include but are not limited to the following:

- Examining the age-related cellular and molecular changes along the central auditory pathway and their impact on neural activity
- Examining the effects of manipulating the balance of excitatory/inhibitory neural activity to study neural circuits along the auditory pathway
- Using imaging techniques to reveal patterns of neural reorganization with hearing loss and aging
- Investigating the central effects of age-related hearing loss on neural and perceptual processing
- Examining gene expression changes in the aging auditory system
- Investigating the degree of neural activation obtained from a diminished auditory signal and subsequent change in cortical reorganization
- Investigating how natural aging influences central auditory plasticity

Awards: Application budgets are limited to \$500,000 in direct costs per year.

Letter of Intent: October 8, 2017

Deadline: November 8, 2017, 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.

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: Small Grants on Primary Immunodeficiency Diseases (R03)

Agency: National Institutes of Health PAR-17-332

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-17-332.html>

Brief Description: This FOA and the companion FOA R21 ([PAR-17-333](#)) are reissues of funding opportunities started in 2007 and renewed in 2010, 2013 and 2016. Numerous R21 and R03 projects were awarded through this program covering a large spectrum of research topics in primary immunodeficiency diseases such as: genetic dissection of these diseases; *in vivo* and *in vitro* model development; thymic implantation strategies; therapeutic and diagnostic approaches; RNA interference approaches; induced pluripotent stem cell strategies; studies on immune dysregulation, DNA repair defects, glycosylation defects, and B cell tolerance defects; establishment of registries and repositories, and others.

Research Objectives and Scope

This FOA will support a wide variety of small grants in primary immunodeficiency research as outlined in the examples below. Research areas supported by this FOA include, but are not limited to:

- Identifying the clinical, immunological, genetic and molecular characteristics of genetically determined immunodeficiency diseases;
- Identifying the molecular basis of primary immunodeficiency diseases;
- Advancing our understanding of how a genetic variant results in immunodeficiency;
- Discovering/developing improved diagnostic/newborn screening tools for primary immunodeficiency diseases;
- Performing *ex vivo* studies with human specimens;
- Discovering/developing new animal models for primary immunodeficiency diseases; and
- Analyzing clinical data and samples maintained in primary immunodeficiency registries, consortium databases and repositories to address questions relevant to primary immunodeficiency research.

Other research areas supported by this FOA include studies of novel therapeutic approaches for treatment of primary immunodeficiency diseases to:

- Improve and better understand existing treatments of primary immunodeficiency diseases;
- Understand complications associated with primary immunodeficiency diseases;
- Define environmental or other triggers that result in complications in individuals with primary immunodeficiency diseases; and
- Identify and validate biomarkers for primary immunodeficiency diseases.

Research areas NOT appropriate for this FOA include studies of:

- Immunodeficiency resulting from infection (e.g., HIV);
- Immunodeficiency resulting from treatments (e.g., chemotherapy), exposures (e.g., radiation), or therapies (e.g., transplantation, or surgery);
- Immunodeficiency resulting from aging or immaturity; and
- Basic immunologic mechanisms unless related to understanding of primary immunodeficiency diseases

Awards: A budget for direct costs of up to \$50,000 per year may be requested (i.e., a maximum of \$100,000 over two years).

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: Notice of Intent to Publish a Funding Opportunity Announcement for Point of Care Technologies Research Network Centers (U54)

Agency: National Institutes of Health NOT-EB-17-004

RFP Website: <https://grants.nih.gov/grants/guide/notice-files/NOT-EB-17-004.html>

Brief Description: The National Institute of Biomedical Imaging and Bioengineering (NIBIB), with the National Heart, Lung, and Blood Institute (NHLBI), the National Institute on Aging (NIA), the Office of Behavioral and Social Sciences Research (OBSSR), National Center for Complementary and Integrative Health (NCCIH) and the Fogarty International Center (FIC) intends to reissue RFA-EB-11-002 , Point-of-Care Technologies Research Network (POCTRN), with modifications. POCTRN's purpose is to drive the development and/or application of appropriate point-of-care technologies through collaborative efforts that merge scientific and technological capabilities with clinical need. The POCTRN Research Centers will create a national research network that works to build expertise in the development and/or application of integrated point-of-care systems that address unmet clinical needs in point-of-care testing through the creation of multidisciplinary partnerships. This Notice is being provided to allow potential applicants sufficient time to develop meaningful collaborations and responsive projects. The FOA is expected to be published in Summer 2017 with an expected application due date in Fall 2017.

Inquiries: Please direct all inquiries to:

Tiffani Bailey Lash, PhD

National Institute of Biomedical Imaging and Bioengineering (NIBIB)

Telephone: 301-451-4778

Email: baileyti@mail.nih.gov

Grant Program: Biomedical Technology Research Resource (P41)

Agency: National Institutes of Health PAR-17-316

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-17-316.html>

Brief Description: This Funding Opportunity Announcement (FOA) will support Biomedical Technology Research Resources (BTRRs) in a variety of areas of biomedical science. (BTRR and Resource are used interchangeably throughout this FOA.) The program has recently been evaluated and the final report is available on the NIGMS BTRR home page (<https://publications.nigms.nih.gov/btrrs/searchresults.asp>). Several important changes have been made to simplify and clarify the application and review process, and to improve the flexibility of individual Resources and the program as a whole. The program continues to focus on two goals: the development of enabling technologies, and sustainable access to those technologies for the research community. These goals are addressed through three components of each center: Technology Research and Development (TR&D), Driving Biomedical Projects (DBPs), and Community Engagement (CE).

Technology Research and Development (TR&D) is the central activity of a BTRR. Research teams create critical, often unique, technologies at the forefront of their respective fields. In support of that mission, the Resources are structured to foster two kinds of collaborations: dynamic, short-term Technology Development Partnerships (Partnerships) with other technology developers, where appropriate, will enable the Resource to adopt and incorporate emerging capabilities in rapidly evolving fields. BTRR investigators must be able to recognize significant parallel contributions by other technology developers, determine whether collaboration is appropriate, and if so, establish mutually beneficial partnerships. While a BTRR is

expected to operate at the leading edge of a technology area, it is important to recognize and exploit advances emerging from other academic research groups.

Similarly, Driving Biomedical Projects (DBPs) are biomedical research test-beds that allow BTRR investigators to test nascent technologies in the context of challenging problems in basic, translational, and clinical research, while providing biomedical researchers with the earliest possible access to these emerging tools. A deep understanding of needs and opportunities in the relevant areas of biomedical research is an essential prerequisite for all technology development. In a BTRR, this understanding is most clearly expressed through successful engagement of those researchers best positioned to benefit from early access to emerging tools.

BTRR investigators are expected to actively engage both researchers who are developing technologies relevant to the Resource's mission, and the scientists in the community whose research may benefit from these emerging technologies. However, the BTRR should not merely integrate and offer access to technologies developed elsewhere. A BTRR is expected to develop leading technologies that will significantly impact a broad community of biomedical researchers, and through leadership within the relevant communities, support the integration of those technologies into the larger context of the relevant field. A successful BTRR will establish and maintain a leading role in the development and early application of important enabling technologies. NIGMS expects that most Research Resources will not be renewed beyond three cycles.

The relatively stable and substantial support of a BTRR allows researchers to address the full range of technology development, including early stage, high risk projects, iterative improvement in the context of challenging real-world problems, and the refinement and optimization of technologies to improve performance and promote the broadest possible dissemination and adoption. The success of BTRR-supported technology development is ultimately measured by adoption in the broader biomedical research community. It is essential that technology development be carried through to completion, including the optimization and dissemination of tools with strong potential for continued impact.

The technology development mission of a BTRR should be characterized by a focus on genuine completion of the development cycle for each promising technology, in a timely manner, and a drive toward obsolescence of the BTRR through ubiquity of the developed technology within the community.

Awards: The maximum budget that may be requested is \$800,000 in recurring direct costs, excluding equipment. Applications requesting more than this amount in recurring costs will not be reviewed. Because of the technology-intensive nature of these Resources, there may be a need to acquire specialized equipment. Equipment requests are expected to vary with the nature of the technology development projects proposed. Funds for such specialized equipment may be requested in excess of the \$800,000 operating limit if well justified.

Letter of Intent: Not required

Deadline: September 25, 2017; January 25, 2018; May 25, 2018; January 25, 2019; May 25, 2019; and January 25, 2020, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

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

Department of Defense/US Army/DARPA/ONR

Grant Program: DoD, Peer Reviewed Alzheimer's Research

Agency: Department of Defense

W81XWH-17-PRARP-RPA	DoD Peer Reviewed Alzheimer's, Research Partnership Award
W81XH-17-PRARP-CSRA	DoD, Peer Reviewed Alzheimer's
W81XWH-17-PRARP-QUAL	DoD Peer Reviewed Alzheimer's, Quality of Life Research Award
W81XWH-17-PRARP-NIRA	DoD Peer Reviewed Alzheimer's, New Investigator Research Award

Website: <http://cdmrp.army.mil/prarp/default>

Brief Description: Several Research Topics in Basic Research: The FY17 Defense Appropriations Act provides \$15 million (M) to the Department of Defense Peer Reviewed Alzheimer's Research Program (PRARP) to support research which addresses the long-term consequences of traumatic brain injury (TBI) as they pertain to Alzheimer's disease (AD) and related dementias (ADRD). The research impact will benefit the military, Veteran, and civilian communities. The PRARP's mission is devoted to (1) understanding the association between traumatic brain injury (TBI) and Alzheimer's disease (AD)/Alzheimer's disease-related dementias (ADRD) and (2) reducing the burden on affected individuals and caregivers, especially in the military and Veteran communities. Consistent with the PRARP's mission and vision, the program faces 6 overarching challenges for FY17. These overarching challenges represent longstanding research goals for the program:

- **Paucity of Research Resources:** The paucity of research resources to examine the interrelationship between TBI and subsequent AD/ADRD for the military, Veteran, and civilian communities.
- **Paucity of Clinical Studies:** The paucity of clinical studies to examine the interrelationship between TBI and subsequent AD/ADRD for the military, Veteran, and civilian communities. This includes research into risk factors which may predispose individuals to AD/ADRD subsequent to TBI.
- **Diagnostic Technologies, Tests, Biomarkers, or Devices:** The need for technologies, tests, or devices to detect or prognose the progression to AD/ADRD subsequent to TBI. This includes research into risk factors which may predispose individuals to AD/ADRD subsequent to TBI.
- **Quality of Life:** The need for technologies, assessments, interventions, or devices to benefit individuals living with the common symptoms or deficits of TBI and AD/ADRD.
- **Caregiver Burden:** The need for technologies, assessments, interventions, or devices with the goal of reducing burden for caregivers of individuals living with the common symptoms or deficits of TBI and AD/ADRD.
- **Epidemiology:** The paucity of epidemiological research to examine the interrelationship between TBI and subsequent AD/ADRD for the military, Veteran, and civilian communities. This includes research into risk factors which may predispose individuals to AD/ADRD subsequent to TBI.

Awards: Standard Grants

Proposal Deadline: September 20, 2017; May need earlier submission of white paper.

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

Grant Program: FY2018 Basic Research Challenge (BRC) Program

Agency: Department of Defense ONR N00014-17-S-BA13

Website: <https://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements>

Brief Description: Several Research Topics in Basic Research: Potential fundamental science questions resolved by this BRC would be (1) is quantum wavefunction collapse an objective feature of quantum systems?, (2) are quantum models beyond the Schrodinger equation necessary?, (3) are quantum translational and rotational friction experimentally observable?, (4) are there short-range corrections to the gravitational constant G?, and (5) how does the Casimir force scale from the nano- to microscale, and how/why does it change from attractive to repulsive? The technology developed to address these questions will have the added benefit of realizing a variety of novel sensors. Research Concentration Area: (1) quantum foundations – experimentally explore quantum/classical boundary, test for quantum translational and rotational friction; (2) quantum information - approaches for leveraging spins and levitated particles for information processing; (3) precision measurement - interrogate gravity corrections and Casimir forces at short length scales; (4) thermodynamics/statistical mechanics - exquisite control to constrain dynamics and then follow microscopic trajectories to build up ensemble averages; and (5) material spectroscopy - levitating objects removes substrate induced effects in performing spectroscopy and microscopy on materials, which is especially crucial for nanomaterials.

Also includes:

This BRC program requires a multidisciplinary integrated computational, experimental, and multi-scale characterization effort including, but not limited to, (1) high-throughput CALPHAD computations of phase equilibria/non-equilibrium solidification; (2) high-throughput experiments using materials libraries with microstructural gradients; (3) deformation, strengthening modeling and validation; (4) multi-scale microstructural characterization; (5) phase stability/phase transformation kinetics; (6) lattice distortions and dislocations; (7) materials synthesis/characterization; and (8) multi-scale mechanics. Possible performers would most likely be a small research group with interdisciplinary expertise in quantum chemistry, materials science, materials informatics, interfacial and surface science, mechanics, 2D, 3D, and 4D atomistic computational simulations and modeling, statistical mechanics, molecular dynamics, phase-field modeling, non-equilibrium processing, CALPHAD and multi-scale thermodynamic and kinetic computational tools. These multi-scale modelling efforts would be validated and verified using state-of-the-art atomic-scale analytical tools.

Awards: Standard Grants

Proposal Deadline:

White Papers: Friday, 18 August 2017; Full Proposals: Friday, 17 November 2017

Contact Information:

Dr. Reginald Williams Basic Research Challenge (BRC) Program Manager Code 03R Office of Naval Research 875 North Randolph Street Arlington VA 22203-1995 reginald.g.williams@navy.mil

Grant Program: CENTER OF EXCELLENCE: Trusted Human-Machine Teaming

Agency: Department of Defense AFOSR

Website: <http://www.wpafb.af.mil/Welcome/Fact-Sheets/Display/Article/842050/>

Brief Description: The Air Force Office of Scientific Research (AFOSR) seeks unclassified proposals from educational institutions in the United States for a University Center of Excellence (UCoE) in in Trusted Human-Machine Teaming. Proposals must not contain any proprietary information. This center is a joint project between the Air Force Office of Scientific Research and the Air Force Research Laboratory, Airman Systems Directorate (AFRL/RH), referred to

collectively as “we, our, or us” in this announcement. The center will extend the research capabilities of the Air Force Research Laboratory, and provide opportunities for a new generation of United States scientists and engineers to address the basic research needs of the Air Force.

We will consider proposals for up to five (5) years with a three-year (3) base period and a two-year (2) option period. of Interest across the lifespan of an individual with ASD, are of particular importance to the ARP.

Awards: Up to \$5,000,000

Proposal Deadline: August 18, 2017

Contact Information:

DR. BENJAMIN KNOTT, AFOSR/RTA2

Trust and Influence Program

Telephone: (703) 696-1142

Email: benjamin.knott.2@us.af.mil

DR. ERICA JOHNSON, AFRL/711 HPW/RHCP

Applied Neuroscience Branch

Telephone: (937) 938-3569

Email: erica.johnson.7@us.af.mil

Grant Program: FY2018 Vannevar Bush Faculty Fellowship

Agency: Department of Defense ONR N00014-17-S-F015

Website: <https://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements>

Brief Description: The Vannevar Bush Faculty Fellowship (VBFF) program is sponsored by the Basic Research Office, Office of the Assistant Secretary of Defense for Research and Engineering (ASD (R&E)). VBFF supports innovative basic research within academia, as well as opportunities intended to develop the next generation of scientists and engineers for the defense workforce. The Office of Naval Research (ONR) manages the VBFF program for ASD (R&E). To accomplish this task, ONR is soliciting proposals for the VBFF program through this FOA. This FOA seeks distinguished researchers for the purpose of conducting innovative basic research in areas of interest to the DoD and fostering long-term relationships between the VBFF Fellows and the DoD. As defined by the DoD, basic research is “systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. It includes all scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs. It is farsighted high payoff research that provides the basis for technological progress.” (http://comptroller.defense.gov/Portals/45/documents/fmr/Volume_02b.pdf) The DoD’s basic research program invests broadly in many scientific fields to ensure that it has early cognizance of new scientific knowledge. VBFF is oriented towards bold and ambitious “blue sky” research that may lead to extraordinary outcomes such as revolutionizing entire disciplines, creating entirely new fields, or disrupting accepted theories and perspectives.

Awards: It is anticipated that awards will be made in the form of grants to U.S. institutions of higher education (universities). It is anticipated that the maximum award will be \$3 million per five years, with the actual amount contingent on availability of funds, the specific topic, and the scope of the proposed work.

Proposal Deadline:

Your registration must be completed no later than

Monday, 14 August 2017 at 11:59 PM Eastern Daylight Time

White Paper Deadline

Your white paper must be received no later than

Wednesday, 16 August 2017 at 11:59 PM Eastern Daylight Time

Inquiries and Questions Deadline

White Papers: Wednesday, 26 July 2017

Business related: Wednesday, 3 January 2018

Invited Proposal Deadline

Your proposal must be received no later than

Monday, 8 January 2018 at 11:59 PM Eastern Standard Time

Contact Information: Dr. Ellen Livingston, VBFF Program Manager; E-mail Address:
ellen.s.livingston@navy.mil

Department of Energy

Grant Program: Advanced Manufacturing Graduate-Level Traineeships

Agency: Department of Energy DE-FOA-0001790

Website: <https://eere-exchange.energy.gov/#Foald365cf14b-d1bc-40f9-9a35-08a8d336d4e7>

Brief Description: Through this Funding Opportunity Announcement (FOA), DOE intends to fund university-led Traineeship Programs that address workforce training needs in the early-stage technology area of advanced materials and process technologies of high importance to manufacturing. The following objectives guide the Office of Energy Efficiency and Renewable Energy (EERE) Advanced Manufacturing Office's (AMO) traineeship efforts:

- Advance the DOE mission – Traineeship programs are designed and implemented to advance specific Science, Technology, Engineering and Math (STEM) workforce competencies required for the DOE's unique mission to ensure America's security and prosperity by addressing its science and energy challenges, particularly with regard to advanced manufacturing.
- Address priority STEM workforce needs and identified gaps in early-stage advanced manufacturing technology – Traineeship programs focus on advancing those critical STEM disciplines and competencies specifically relevant to the AMO missions where other U.S. Government or academic workforce development programs either do not exist or where DOE-relevant early-stage technology areas are not being leveraged to support specific DOE mission responsibilities.

The high priority topic identified in this traineeship program is advanced manufacturing (advanced materials and process technologies in manufacturing).

Award: EERE expects to make approximately \$2,500,000 of Federal funding available for new awards under this FOA, subject to the availability of appropriated funds. EERE anticipates making approximately 1-2 awards under this FOA. EERE may issue one, multiple, or no awards. Individual awards may vary between \$1,250,000 and \$2,500,000.

Proposal Deadline:

- Concept Paper Submission Deadline: 8/8/2017 5:00 PM ET
- Full Application Submission Deadline: 9/13/2017 5:00 PM ET

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

Grant Program: Technology Development to Ensure Environmentally Sustainable CO2 Injection Operations

Agency: Department of Energy DE-FOA-0001725

Website:

https://www.fedconnect.net/FedConnect/PublicPages/PublicSearch/Public_Opportunities.aspx

Brief Description: This FOA seeks applications on research to develop techniques, tools, and methodologies that improve detection and assessment of CO2 stored in the target reservoir. Research products developed under this FOA are expected to include monitoring tools and techniques, as well as validation of models and modeling techniques. Successful technologies developed under this FOA will decrease the operator's financial burden associated with long-term monitoring by providing them the capability to assess the position of the CO2 plume in the target reservoir with greater certainty throughout the life cycle of the project (i.e., active- and post-injection).

Award: Up to \$2,000,000

Proposal Deadline: August 11, 2017

Contact Information:

K. Young 412-386-4402 bethan.young@netl.doe.gov

NASA

Grant Program: ROSES 2017: Solar Irradiance Science Team

Agency: NASA NNH17ZDA001N-SIST

Website:

<https://nspires.nasaprs.com/external/solicitations/summary.do?sollid=%7B74B6448A-AF9D-A1F6-9ED7-ABD7FF9C90C8%7D&path=open&method=init>

Brief Description: Solar irradiance represents the primary external forcing that operates on the Earth and contributes to variability and change in the Earth's climate and atmospheric composition. It can only be measured above the atmosphere given the significant absorption that takes place within it. The Earth system is sensitive to variations in both the Total Solar Irradiance (TSI), as well as the spectral dependence of any variation, given the fact that different wavelengths have their greatest absorption at different altitudes in the atmosphere. Variations in TSI are quite small – the typical variation over the 11-year solar cycle is on the order of $\pm 0.15\%$. Variations in the solar irradiance as a function of wavelength increase with decreasing wavelength, potentially being of the order of a few percent at the short wavelength ultraviolet radiation responsible for photodissociation of oxygen and a factor of order unity at wavelengths near Lyman Alpha (121.6 nm).

Awards: Various

Proposal Deadline:

SIST17 NOIs Due Aug 04, 2017

SIST17 Proposals Due Oct 06, 2017

Contact: David B. Considine Earth Science Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Tel: 202-358-2277 Email: david.b.considine@nasa.gov

Grant Program: ROSES 2017: New (Early Career) Investigator Program

Agency: NASA NNH17ZDA001N-NIP

Website:

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={344D6EF1-D56F-60FD-505E-A31035E2B19C}&path=open>

Brief Description: The New (Early Career) Investigator Program (NIP) in Earth Science is designed to support outstanding scientific research and career development of scientists and engineers at the early stage of their professional careers. The program aims to encourage innovative research initiatives and cultivate scientific leadership in Earth system science. The Earth Science Division (ESD) places particular emphasis on the investigators' ability to promote and increase the use of space-based remote sensing through the proposed research. The NIP supports all aspects of scientific and technological research aimed to advance NASA's mission in Earth system science (<http://science.nasa.gov/about-us/sciencestrategy/>). In research and analysis, the focus areas are: • Carbon Cycle and Ecosystems, • Climate Variability and Change, • Water and Energy Cycle, • Atmospheric Composition, • Weather, and • Earth Surface and Interior. In Applied Sciences, the ESD encourages efforts to discover and demonstrate practical uses of NASA Earth science data, knowledge, and technology (see <http://appliedsciences.nasa.gov>). In technological research, the ESD aims to foster the creation and infusion of new technologies into space missions in order to enable new scientific observations of the Earth system or reduce the cost of current observations (see <http://esto.nasa.gov>). The ESD also promotes innovative development in computing and information science and engineering of direct relevance to ESD. See Appendix A.1 for more detailed descriptions of the Focus Areas, themes in applied sciences, and related research topics of high priority to the ESD.

The proposed research project must be led by a single, eligible (see further description below for eligibility) investigator serving as the Principal Investigator (PI). Indeed, this individual must be the only essential team member; no Co-Investigators (Co-Is), paid or unpaid, are permitted. The NIP does not accept proposals with Co-PIs nor two types of PIs, such as Science PI and Institutional PI. Students and postdoctoral fellows may participate as paid team members. The proposed research may include collaborations. See the Guidebook for Proposers at <http://www.hq.nasa.gov/office/procurement/nraguidebook/> for the definitions of Collaborator vs. Co-Investigator and descriptions of China-related restrictions.

To be eligible for an NIP award, proposed PIs must meet the following requirements:

1. Be employed at an institution in the U.S., its territories, or possessions, or the Commonwealth of Puerto Rico, which awards a baccalaureate or advanced degree in a field supporting the objectives of NASA Earth system studies, or be employed at any nonprofit research institution or other nonprofit organization that performs a significant amount of work in fields of research supporting the objectives of NASA's Earth Science Program. Such organizations could include museums, observatories, Government or nonprofit research laboratories, as well as nonprofit entities in the private sector.
2. Be in tenure- or nontenure-track positions in either teaching or research or both, as long as the employing institution assumes the responsibility of submitting the proposal with the individual as the proposed PI.
3. Despite being more than five years beyond the receipt of their Ph.D. degrees, individuals who have interrupted their careers for reasons such as family leave or serious health problems may also be eligible. These applicants should make a written request for prior concurrence from NASA before the due date for Notices of Intent to propose. NASA will provide a written response within three weeks. Such exception is not intended for individuals who have had successful employment in technical fields in science and engineering, even though the employment is not a direct

continuation of their Ph.D. research, nor is it intended for individuals with a recent Ph.D. degree after having already established a successful career in Earth system science and related disciplines.

4. Not hold or have held tenure (or equivalent) on or before the submission deadline of this program.

5. Not be a current or former recipient of the NIP or Presidential Early Career Award for Scientists and Engineers (PECASE) (see further below) award.

Awards: Proposals to the NIP are openly solicited approximately every two years. The anticipated average award is \$80-90K per year for a period of up to three years, subject to satisfactory progress and availability of funds.

Proposal Deadline: NIP17 NOIs Due: July 31, 2017

NIP17 Proposals Due: August 31, 2017

Contact: Lin Chambers

Earth Science Division

Science Mission Directorate

NASA Headquarters

Washington, DC 20546-0001

Telephone: 202-358-1667

E-mail: lin.h.chambers@nasa.gov

National Endowment of Humanities

Grant Program: Summer Awards

Agency: National Endowment of Humanities

Website: <https://www.neh.gov/grants/research/summer-stipends>

Brief Description: Summer Stipends support individuals pursuing advanced research that is of value to humanities scholars, general audiences, or both. Eligible projects usually result in articles, monographs, books, digital materials and publications, archaeological site reports, translations, or editions. Projects must not result solely in the collection of data; instead they must also incorporate analysis and interpretation.

Summer Stipends support continuous full-time work on a humanities project for a period of two consecutive months. Summer Stipends support projects at any stage of development.

Awards: \$6,000 stipend.

Proposal Deadline: **September 27, 2017** for Projects Beginning May 2018

Contact: Contact NEH's Division of Research Programs at 202-606-8200 or stipends@neh.gov.

Burroughs Welcome Fund

Grant Program: BWF's Career Awards at the Scientific Interface

Agency: Burroughs Welcome Fund

Website: <https://www.bwfund.org/grant-programs/interfaces-science/career-awards-scientific-interface>

Brief Description: These grants are intended to foster the early career development of researchers who have transitioned or are transitioning from undergraduate and/or graduate

work in the physical/mathematical/computational sciences or engineering into postdoctoral work in the biological sciences, and who are dedicated to pursuing a career in academic research. Scientific advances such as genomics, quantitative structural biology, imaging techniques, and modeling of complex systems have created opportunities for exciting research careers at the interface between the physical/computational sciences and the biological sciences. Tackling key problems in biology will require scientists trained in areas such as chemistry, physics, applied mathematics, computer science, and engineering.

Application Process:

The competition will employ a two-stage process. Pre-proposals will be reviewed and full proposal invitations will be sent by November 14, 2017.

All applicants will be required to complete a web-based questionnaire assessing their eligibility to apply for this award. If eligibility criteria are met, applicants will be automatically directed to the web-based pre-proposal application.

Awards: BWF's Career Awards at the Scientific Interface (CASI) provide \$500,000 over five years to bridge advanced postdoctoral training and the first three years of faculty service. These awards are open to U.S. and Canadian citizens or permanent residents as well as to U.S. temporary residents

Proposal Deadline:

Sept. 6, 2017: Pre-proposal deadline

Nov. 14, 2017: Invitations sent

Jan. 10, 2018: Full proposal deadline

Mar. 23, 2018: Finalists notified

Apr. 25-26, 2018: In-person interviews

Contact: [Rusty Kelley, Ph.D.](#), Program Officer, 919-991-5120

For more information, please also contact Eric Blitz, Associate Director for Development Corporate and Foundation Relations, eric.blitz@njit.edu

Alfred P. Sloan Foundation

Grant Program: Alfred P. Sloan Foundation Grants

Agency: Alfred P. Sloan Foundation

Website: <https://sloan.org/grants/apply#tab-the-grant-application-process>

Brief Description: The Alfred P. Sloan Foundation makes grants year-round, though major grants (<\$125K) are approved only quarterly. Grantseekers should take care to work with their program director to ensure there is sufficient time for submission, redrafting, independent review, and amendments subsequent to review.

Candidates' most recent Ph.D. must have been awarded after September 1, 2011.

The Foundation strongly encourages the nomination of women and underrepresented minority candidates.

Application Process:

STEP 1: READ THE FOUNDATION'S WEBSITE

- The Alfred P. Sloan Foundation makes grants through its various grantmaking programs. Grant applications are made to a particular program. Interested applicants should read carefully through the Foundation's program descriptions in the Programs section of the website. Each program page includes a statement of the program's goals, a description of the strategies employed, a list of recent grants, and a section with information about how

to apply. Interested applicants are encouraged to browse through some of the grants made in the program to get a feeling for the kind of projects the program supports.

STEP 2: SUBMIT A LETTER OF INQUIRY

- Once a relevant program has been identified, an interested grantseeker should submit a Letter of Inquiry by email to the appropriate program director. See our [Letters of Inquiry](#) section for more information about Letters of Inquiry.
- **NOTE: Not all programs accept unsolicited inquiries.** The *Apply* section of each program page specifies whether that program is currently accepting inquiries.

STEP 3: SUBMIT A FORMAL GRANT PROPOSAL

- **The Alfred P. Sloan Foundation does not accept or review unsolicited grant proposals.**
- Grantseekers that submit promising letters of inquiry will be invited to submit a formal grant proposal. Visit our [Grant Proposal Guidelines](#) section for more information about composing and submitting a grant proposal.
- The [Tips for Writing a Successful Grant Proposal](#) section gives useful advice on how to write a successful proposal.
- Once a proposal has been submitted, the Foundation will evaluate the proposal. The Foundation's grant review and approval process is extremely rigorous and designed to mimic the peer review process at high quality academic journals. Depending on the funds requested and the complexity of the work to be performed, the Foundation may seek independent expert review of the proposal. If so, grantseekers are given the opportunity to respond in writing to reviewer comments. It is not unusual for a grantseeker to be asked to revise, amend, or supplement the original proposal (sometimes significantly) as a result of the proposal review process.

Awards: The Alfred P. Sloan Foundation offers a two-year research fellowship totaling \$65,000 for early career researchers in:

Chemistry, Computer Science, Mathematics, Neuroscience, Ocean Sciences, Physics...

Proposal Deadline: September 15, 2017

Contact: For more information, please also contact Eric Blitz, Associate Director for Development Corporate and Foundation Relations, eric.blitz@njit.edu

Streamlyne Update

Research proposals are being successfully submitted through Streamlyne. New “How to Do” videos have been posted on the research website <http://www5.njit.edu/research/streamlyne/>. These 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](#)

In addition, most Frequently Asked Question (FAQs) from PIs are posted with answers on the same website as [Streamlyne FAQs](#)

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

Nancy Henderson, CCS Project Manager

973-596-5687; nancy.henderson@njit.edu

Iris Pantoja, CoAD and SOM Project Manager

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