NJIT Research Newsletter

Issue: ORN-2017-25

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 Announcement
Internal Competition for NSF Innovations in Graduate Education (IGE) Program

Pre-proposals in the following format (maximum 5 pages) should be submitted to respective dean's office by September August 25, 2017. Deans are requested to forward up to 2 pre-proposals with their recommendations to the Office of Research at dhawan@njit.edu by September 4, 2017. Two pre-proposals will be selected after institutional review by Sept 8, 2017.
Pre-proposal Format (maximum 5 pages):

1. Title and key personnel with affiliation
2. Project Summary (1-page)
3. Internal and External Collaboration
4. Intellectual Merit: Innovation in Graduate Education
5. Broader Impact
6. Performance Assessment/Project Evaluation
7. Tentative Budget Summary and Any Resources Needed

Grant Program: Innovations in Graduate Education (IGE) Program
Agency: National Science Foundation NSF 17-585
RFP Website: https://www.nsf.gov/pubs/2017/nsf17585/nsf17585.htm
Brief Description: The Innovations in Graduate Education (IGE) program is designed to encourage the development and implementation of bold, new, and potentially transformative approaches to STEM graduate education training. The program seeks proposals that explore ways for graduate students in research-based master's and doctoral degree programs to develop the skills, knowledge, and competencies needed to pursue a range of STEM careers.

IGE focuses on projects aimed at piloting, testing, and validating innovative and potentially transformative approaches to graduate education. IGE projects are intended to generate the knowledge required for their customization, implementation, and broader adoption. The program supports testing of novel models or activities with high potential to enrich and extend the knowledge base on effective graduate education approaches.

The program addresses both workforce development, emphasizing broad participation, and institutional capacity building needs in graduate education. Strategic collaborations with the private sector, non-governmental organizations (NGOs), government agencies, national laboratories, field stations, teaching and learning centers, informal science centers, and academic partners are encouraged.

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

Limit on Number of Proposals per Organization: 2

An eligible organization may participate in two Innovations in Graduate Education proposals per competition. Participation includes serving as a lead organization on a non-collaborative proposal or as a lead organization, non-lead organization, or subawardee on a collaborative proposal. Organizations participating solely as evaluators on projects are excluded from this limitation. Proposals that exceed the institutional eligibility limit (beyond the first two submissions based on timestamp) will be returned without review regardless of the institution's role (lead, non-lead, subawardee) in the returned proposal..

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

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

Letter of Intent: Not Required

Proposal Submission Due Date: October 25, 2017

Contacts: Laura B. Regassa, telephone: (703) 292-2343, email: lregassa@nsf.gov

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

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Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: Innovations in Graduate Education (IGE) Program; Discovery Research PreK-12 (DRK-12); CISE Research Infrastructure (CRI); Division of Materials Research: Topical Materials Research Programs (DMR-TMRP); Louis Stokes Alliances for Minority Participation (LSAMP); Secure and Trustworthy Cyberspace (SaTC); Advancing Informal STEM Learning (AISL); Information and Intelligent Systems (IIS)

NIH: Grant Program: Exploratory/Developmental Investigations on Primary Immunodeficiency Diseases (R21); Synthetic Biology for Engineering Applications (R01); Assay development and screening for discovery of chemical probes or therapeutic agents (R01); Discovery of Cell-based Chemical Probes for Novel Brain Targets (R21); 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)

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
Bayer: Novel Drug Targets
Simon Foundation: Alfred P. Sloan Foundation Grants

Recent Research Grant and Contract Awards

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

PI: Xin Di (PI) , Bharat Biswal (Co-PI) and Xiaobo Li (Co-PI)
Department: Biomedical Engineering
Grant/Contract Project Title: Multimodal Neuroimaging Study of Sex Differences in Preschool Children with Autism
Funding Agency: NJ Department of Health
Duration: 07/01/16-06/30/18

PI: Chase Wu (PI)
Department: Computer Science
Grant/Contract Project Title: IP Access Gateway Electronics
Funding Agency: US Department of Energy
Duration: 02/20/17-12/31/17

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: Gale Spak (PI)
Department: Continuing Professional Education (CPE)
Grant/Contract Project Title: Advanced Manufacturing Talent Network
Funding Agency: NJ Dept of Labor and Workforce Development
Duration: 01/01/17-12/31/17

PI: Gale Spak (PI)
Department: Continuing Professional Education (CPE)
Grant/Contract Project Title: Transportation, Logistics, and Distribution Talent Network
Funding Agency: NJ Dept of Labor and Workforce Development
Duration: 01/01/17-12/31/17

PI: Raul Mercado (PI)
Department: PTAC
Grant/Contract Project Title: Procurement Technical Assistance Program (PTAP)
Funding Agency: DLA-PTAP
Duration: 08/01/17-07/31/18

PI: Gale Spak (PI)
Department: Continuing Professional Education (CPE)
Grant/Contract Project Title: Technology Talent Network
Funding Agency: NJ Dept of Labor and Workforce Development
Duration: 01/01/17-12/31/17

PI: Yassine Boubendir (PI)
Department: Mathematical Sciences
Grant/Contract Project Title: Efficient High Frequency Integral Equations and Iterative Methods
Funding Agency: NSF
Duration: 06/01/17-07/31/20

PI: Wen Zhang (PI)
Department: Civil and Environmental Engineering
Grant/Contract Project Title: Removal of Polyfluoroalkyl Substances (PFASs) And Other Micropollutants Using Spiky Sweetgum Seeds as Renewable Bioadsorbents to Support "Waste Control by Waste" and point-of-use (POU) Water Treatment Devices
Funding Agency: US Geological Survey
Duration: 03/30/17-02/28/18

PI: Bryan Pfister (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: In Vitro Platform for High Throughput Study of Injury to Human Cortical Projection Neurons
Funding Agency: NJ Department of Health
Duration: 07/01/16-06/30/18

PI: Bryan Pfister (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: A Therapeutic Approach to Reduce Angiotensin II Induced Neurovascular Complications in Traumatic Brain Injury
Funding Agency: NJ Department of Health
Duration: 07/01/16-06/30/18

PI: Abdi Ali (PI) and Michael Ehrlich (Co-PI)
Department: Electrical and Computer Engineering; MT School of Management
Grant/Contract Project Title: PFI: AIR - TT: A Novel Vector Acoustic Communication Technology for High Speed Underwater Modems
Funding Agency: NSF
Duration: 08/15/15-01/31/18

PI: Jorge Golowasch (PI) and Horacio Rotstein (Co-PI)
Department: Biological Sciences; Mathematical Sciences
Grant/Contract Project Title: The Role of Neuronal Ionic Current Correlations and Level Sets in Network Activity
Funding Agency: NSF
Duration: 08/01/17-07/31/20

PI: Hyomin Kim (PI)
Department: Center for Solar Terrestrial Research
Grant/Contract Project Title: Collaborative Research: GEM - Global Propagation Characteristics of Electromagnetic Ion Cyclotron Waves
Funding Agency: NSF
Duration: 08/01/17-07/31/20

In the News…

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

House Reverses Proposed Cut To Energy Innovation Hubs: The U.S. House of Representatives has reversed course and has now decided to fund the Department of Energy's (DOE's) five "energy innovation hubs" in fiscal year 2018, which begins 1 October. The House appropriations committee had zeroed out funding for the hubs in the House version of the so-called energy and water bill, which funds DOE. But last night the full House passed a package of amendments to the bill, which the House has now rolled together with three other spending bills into a so-called minibus spending bill. One of the amendments, submitted by Representative Mark Takano (D–CA), restores the hubs, each of which is currently funded at $25 million per year or less. The energy innovation hubs are the brainchild of Steven Chu, the Nobel Prize–winning physicist who **served as Secretary of Energy from 2009 to 2013**. They include:

- the Joint Center for Artificial Photosynthesis at the California Institute of Technology in Pasadena;
- the Consortium for Advanced Simulation of Light Water Reactors, headquartered at Oak Ridge National Laboratory in Tennessee;
- the Joint Center for Energy Storage Research at Argonne National Laboratory in Lemont, Illinois;
- the Critical Materials Institute at Ames Laboratory in Iowa; and
- a yet-to-be sited hub on low-energy desalination of sea water, which received its first funds this year.

The change to the House version of DOE's proposed budget doesn't guarantee that the hubs will survive. Both chambers of Congress must still pass their versions of the budget and then hammer out their substantial differences on myriad issues. The House's energy and water bill, for example, would eliminate DOE's Advance Research Projects Agency-Energy, which seeks to quickly translate the best ideas from basic research into new energy technologies, whereas Senate appropriators would bump its budget by 8% to $330 million. And the House would fund DOE Office of Energy Efficiency and Renewable Energy at $1.1 billion, whereas Senate appropriators would fund it at $1.9 billion. More information on http://www.sciencemag.org/news/2017/07/house-reverses-proposed-cut-energy-innovation-hubs

NSF FY18 Budget: The National Science Foundation's current budget would shrink by 2.1 percent, or $162 million, in the bill approved by Senate appropriators, Jeff Mervis reports in ScienceInsider. That number, and the proposed cut of $193 million to NASA's Science Mission Directorate, drew a statement of concern from the Association of American Universities. "The university-based research supported by these agencies has kept the United States globally competitive in many

areas of science, technology, and innovation; these cuts imperil our ability to maintain this competitiveness," AAU says. The money provided by the Commerce, Justice, and Science subcommittee would nonetheless erase most of the Trump cuts at NSF, the National Institute of Standards and Technology (NIST), and the National Oceanic and Atmospheric Administration (NOAA). More information on http://www.sciencemag.org/news/2017/07/house-reverses-proposed-cut-energy-innovation-hubs

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/

Space Technology Boost: While cutting NASA Science, Senate appropriators provide $700 million for the space agency's technology programs - adding $13.5 million to 2017 levels. Among priorities are unmanned aerial systems, which get $5 million "to conduct further research in a broad range of public safety applications over land and maritime environments" at Federal Aviation Administration centers of excellence. Senators also provide current levels of support to NASA's education program, which the administration had proposed to slash.

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

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: How Analytics can be used to Drive More Effective Business Decisions around Additive Manufacturing
When: August 15, 2017; 2.00 PM
Website: http://spectrum.ieee.org/webinar/how-analytics-can-be-used-to-drive-more-effective-business-decisions-around-additive-manufacturing
About the Webinar: The digitalization journey continues. From our foundation presentation "How Digitalization is transforming the Electronics Industry", we continue along the connected journey to adopting a digitalization strategy. Manufacturers are increasingly looking to disruptive technologies like Additive Manufacturing to enable on demand production, produce components never before possible and reduce order to cash cycle time. Even though 3D Printers are more accessible than ever, moving from prototyping to meaningful volume production still requires a significant investment in capital, process change and retooling of personnel. Going beyond the basic technology of 3D printing, this session draws from recent collaboration between leading manufactures who are seeking to fully understand the "why" to additive manufacturing and how data analytics can be used to drive more effective business decisions. We believe a new data analytics approach to unify, contextualize and present simplified business insights for proper component/part selection has the potential to dramatically improve the return from 3D printing. All by focusing valuable capital resources to produce the right parts at the right time. Please join us while we take a deeper dive into some of the new and fascinating areas and technological advances that are transforming the electronics industry.
Speaker: Jeff Spencer is a Portfolio Development Executive at Siemens with over 22 years of industry experience in Big Data Analytics, 3D Design and Product Lifecycle Management.
Register at: Above URL.

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&regTag=&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=Te

ch%2BAlert&utm_medium=Email&utm_campaign=TechAlert_07-06-17&eventid=1433462&sessionid=1&key=9BF06E3E1B2B31C7FAE1E9C5CF16298A&regTag=&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: Innovations in Graduate Education (IGE) Program
Agency: National Science Foundation NSF 17-585
RFP Website: https://www.nsf.gov/pubs/2017/nsf17585/nsf17585.htm
Brief Description: The Innovations in Graduate Education (IGE) program is designed to encourage the development and implementation of bold, new, and potentially transformative approaches to STEM graduate education training. The program seeks proposals that explore ways for graduate students in research-based master's and doctoral degree programs to develop the skills, knowledge, and competencies needed to pursue a range of STEM careers.

IGE focuses on projects aimed at piloting, testing, and validating innovative and potentially transformative approaches to graduate education. IGE projects are intended to generate the knowledge required for their customization, implementation, and broader adoption. The program supports testing of novel models or activities with high potential to enrich and extend the knowledge base on effective graduate education approaches.

The program addresses both workforce development, emphasizing broad participation, and institutional capacity building needs in graduate education. Strategic collaborations with the private sector, non-governmental organizations (NGOs), government agencies, national laboratories, field stations, teaching and learning centers, informal science centers, and academic partners are encouraged.
Awards: Standard Grants. **Anticipated Funding Amount:** $4,000,000
Limit on Number of Proposals per Organization: 2
An eligible organization may participate in two Innovations in Graduate Education proposals per competition. Participation includes serving as a lead organization on a non-collaborative proposal or as a lead organization, non-lead organization, or subawardee on a collaborative proposal. Organizations participating solely as evaluators on projects are excluded from this

limitation. Proposals that exceed the institutional eligibility limit (beyond the first two submissions based on timestamp) will be returned without review regardless of the institution's role (lead, non-lead, subawardee) in the returned proposal..

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

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

Internal Competition for Limited Submission: Pre-proposals in the following format (maximum 5 pages) should be submitted to respective dean's office by September August 25, 2017. Deans are requested to forward up to 2 pre-proposals with their recommendations to the Office of Research at dhawan@njit.edu by September 4, 2017. Two pre-proposals will be selected after institutional review by September 8, 2017.

Pre-proposal Format (maximum 5 pages):

8. Title and key personnel with affiliation
9. Project Summary (1-page)
10. Internal and External Collaboration
11. Intellectual Merit: Innovation in Graduate Education
12. Broader Impact
13. Performance Assessment/Project Evaluation
14. Tentative Budget Summary and Any Resources Needed

Letter of Intent: Not Required

Proposal Submission Due Date: October 25, 2017

Contacts: Laura B. Regassa, telephone: (703) 292-2343, email: lregassa@nsf.gov

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

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Grant Program: Discovery Research PreK-12 (DRK-12)

Agency: National Science Foundation NSF 17-584

RFP Website: https://www.nsf.gov/pubs/2017/nsf17584/nsf17584.htm

Brief Description: The Discovery Research PreK-12 program (DRK-12) seeks to significantly enhance the learning and teaching of science, technology, engineering, mathematics and computer science (STEM) by preK-12 students and teachers, through research and development of STEM education innovations and approaches. Projects in the DRK-12 program build on fundamental research in STEM education and prior research and development efforts that provide theoretical and empirical justification for proposed projects. Projects should result in research-informed and field-tested outcomes and products that inform teaching and learning. Teachers and students who participate in DRK-12 studies are expected to enhance their understanding and use of STEM content, practices and skills.

The DRK-12 program invites proposals that address immediate challenges that are facing preK-12 STEM education as well as those that anticipate radically different structures and functions of preK-12 teaching and learning. The DRK-12 program has three major research and development strands: (1) Assessment; (2) Learning; and (3) Teaching. The program recognizes the synergy among the three strands and that there is some overlap and interdependence among them. However, proposals should identify a clear focus of the proposed research efforts (i.e., assessment, learning, or teaching) consistent with the proposal's main objectives and research questions. The program supports five types of projects: (1) Exploratory, (2) Design and Development, (3) Impact,

(4) Implementation and Improvement, and (5) Conferences and Syntheses. All five types of projects apply to each of the three DRK-12 program strands.
Awards: Standard Grants. **Anticipated Funding Amount:** $57,000,000
Letter of Intent: Not Required
Proposal Submission Due Date: November 14, 2017
Contacts: Inquiries can be made to, telephone: (703) 292-8620, email: DRLDRK12@nsf.gov

- David B. Campbell, telephone: (703) 292-5093, email: dcampbel@nsf.gov
- Julia V. Clark, telephone: (703) 292-5119, email: jclark@nsf.gov
- Catherine Eberbach, telephone: (703) 292-4960, email: ceberbac@nsf.gov

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Grant Program: CISE Research Infrastructure (CRI)
Agency: National Science Foundation NSF 17-581
RFP Website: https://www.nsf.gov/pubs/2017/nsf17581/nsf17581.htm
Brief Description: The CISE Research Infrastructure (CRI) program drives discovery and learning in the core CISE disciplines of the three participating CISE divisions by supporting the creation and enhancement of world-class research infrastructure that will support focused research agendas in computer and information science and engineering. This infrastructure will enable CISE researchers to advance the frontiers of CISE research. Further, through the CRI program, CISE seeks to ensure that individuals from a diverse range of academic institutions, including minority-serving and predominantly undergraduate institutions, have access to such infrastructure.
The CRI program supports two classes of awards:

- **Institutional Infrastructure (II)** awards support the creation of **new (II-NEW)** CISE research infrastructure or the **enhancement (II-EN)** of existing CISE research infrastructure to enable world-class CISE research opportunities at the awardee and collaborating institutions.
- **Community Infrastructure (CI)** awards support the **planning (CI-P)** for new CISE community research infrastructure, the **creation of new (CI-NEW) CISE research infrastructure**, the **enhancement (CI-EN) of existing CISE infrastructure**, or the **sustainment (CI-SUSTAIN) of existing CISE community infrastructure** to enable world-class CISE research opportunities for broad-based communities of CISE researchers that extend well beyond the awardee institutions. Each CI award may support the operation of such infrastructure, ensuring that the awardee institution(s) is (are) well positioned to provide a high quality of service to CISE community researchers expected to use the infrastructure to realize their research goals.

Awards: Standard Grants. **Anticipated Funding Amount:** $18,000,000
Letter of Intent: Not Required
Limit on Number of Proposals per Organization:
A university or organization may submit no more than three Institutional Infrastructure (II) proposals per competition. There is no limit on Community Infrastructure (CI) proposals per competition.
These eligibility constraints will be strictly enforced in order to treat everyone fairly and consistently. In the event that an institution or organization exceeds this limit, proposals received within the limit will be accepted based on the earliest date and time of proposal submission (i.e., the first three II proposals received will be accepted and the remainder will be returned without review). No exceptions will be made.

Internal LOI: If you are interested in submitting a proposal, please send a project summary with Intellectual Merit and Broader Impact to the Office of Research at dhawan@njit.edu as soon as possible but no later than October 1, 2017 to ensure compliance of limited submission.

Limit on Number of Proposals per PI or Co-PI: 2

In each annual competition, an individual may participate in at most two proposals, across all classes, as PI, Co-PI, or Senior Personnel.

These eligibility constraints will be strictly enforced in order to treat everyone fairly and consistently. In the event that an individual exceeds this limit, proposals received within the limit will be accepted based on the earliest date and time of proposal submission (i.e., the first two proposals received will be accepted and the remainder will be returned without review). No exceptions will be made.

Proposal Submission Due Date: November 2, 2017

Contacts: Harriet G. Taylor, Lead Program Director, 1175, telephone:(703) 292-8950, email: htaylor@nsf.gov

- Tao Li, Program Director, CCF, 1115, telephone:(703) 292-8238, email: taoli@nsf.gov
- Mimi McClure, Associate Program Director, CNS, 1145, telephone:(703) 292-8950, email: mmcclure@nsf.gov
- Wendy Nilsen, Program Director, IIS, 1125, telephone:(703) 292-2568, email: wnilsen@nsf.gov

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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

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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 retention[1]. 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: 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

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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

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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

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National Institutes of Health

Grant Program: Exploratory/Developmental Investigations on Primary Immunodeficiency Diseases (R21)
Agency: National Institutes of Health PAR-17-333
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-17-333.html
Brief Description: This FOA will support a wide range of innovative, exploratory and/or developmental research on primary immunodeficiency diseases. 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), immunosuppression following transplantation, or autoimmune disorders;
- Immunodeficiency resulting from aging or immaturity; and
- Basic immunologic mechanisms unless related to understanding of primary immunodeficiency diseases.

Awards: Direct costs are limited to $275,000 over the two-year project period, with no more than $200,000 in direct costs allowed in any single year.
Letter of Intent: Not Required
Deadline: Standard dates apply, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.
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: Synthetic Biology for Engineering Applications (R01)
Agency: National Institutes of Health PAR-17-334
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-17-334.html
Brief Description: One of the great challenges in biomedical research is to be able to quantitatively predict, test, and harness the complex dynamics of biological systems. Synthetic biology is the design and construction of new biological parts and systems, and the re-design of existing and natural biological systems for specific purposes. In contrast to the traditional genetic engineering approach, which usually focuses on individual genes and proteins, synthetic biology adopts a more systematic approach targeting entire pathways, networks, and whole organisms with quantitative control and modulation. Synthetic biology is arguably the cornerstone of the next generation of reengineered cells. Gaining new insights into the complex and dynamic biological pathways of these designer cells and developing cell-based diagnostics and therapies are at the frontiers of biomedical science. Enabling these de novo biological systems will require the ability to design and build complex pathways with endogenous or novel functions and with predictable and quantitative responses to endogenous or environmental signals. Achieving this paradigm will allow the testing of hypotheses on complex biological systems and the development of novel therapeutic strategies and diagnostic capabilities. To improve the reach and impact of this paradigm on human health, an integrative research plan based on collaborations of synthetic biologists with computational scientists, cell biologists, engineers, and/or physician scientists is strongly recommended.

Specific Areas of Research Interest

Synthetic biology for human health is advancing, but major challenges, such as the inability to engineer robust complex metabolic and signaling networks or to produce cells with reliable and predicable behavior once in the host, currently limit application. This FOA encourages the development of tools and technology to tackle challenges in biomedical research and in cell-based therapies and diagnostics. Specific topics of interest include, but are not limited to, those listed below.

- Cell-free and cell-based systems for testing and analyzing biological systems and for the efficient and scalable synthesis of complex biological products
- Cell-free (prototyping genetic circuits, discovering and evolving enzymes, and conducting biomolecular reactions)
- Cell-based (materials and pharmaceutical production, microbiome reprogramming, diagnostics)
- Natural and engineered biological circuits for implementing regulation and decision-making strategies in cells (modeling, analysis, design, and use of biological circuits, cell-cell communication, gene regulation, computation strategies)
- Expanding biochemical functionality (novel genetic alphabets, changing molecular machinery of the cell, constructing genomically recoded organisms, genetically encoded reporters)
- Advanced genome editing techniques for manipulating DNA (computational algorithms, zinc finger nucleases, TAL effector nucleases, CRISPR-Cas9)
- Design and evolution strategies to construct biological systems (directed evolution, continuous evolution, multiplexed evolution)

NIBIB Statement of Interest

The National Institute of Biomedical Imaging and Bioengineering (NIBIB) is interested in projects from all of the aforementioned research areas, but with an emphasis on supporting the creation of

tools and methods to enable synthetic biology approaches across a wide spectrum of biomedical engineering challenges addressed through broadly applicable diagnostic, therapeutic, and interventional technologies. Furthermore, NIBIB is interested in supporting projects that use synthetic biology approaches for the development and validation of technologies with potential clinical applications. Examples of technologies include, but are not limited to, biomaterials, drug and gene delivery systems and devices, molecular imaging probes, immunoengineering, multiscale modeling, sensors, microsystems, tissue chips, and tissue engineering. A complete list of programmatic interests in NIBIB can be found at: https://www.nibib.nih.gov/research-funding. Furthermore, the NIBIB mission does not include the development of new technologies to address basic research questions in cellular processes, functions, and structure. For research leading to the development of such technologies, applicants should consult the National Institute of General Medical Sciences (NIGMS).

NCI Statement of Interest

The National Cancer Institute (NCI) supports a broad-based portfolio of cancer research and development projects encompassing basic, translational, clinical, and epidemiological inquiries. This includes support for the development and application of novel enabling technologies in a broad range of cancer research. NCI strongly encourages multidisciplinary collaborations between synthetic biologists and cancer biologists or translational cancer researchers in developing novel solutions to tackle critical cancer problems. Some general examples that are relevant to this FOA include, but are not limited to:

- Developing novel synthetic biology methods and tools relevant to cancer research and cancer management
- Using synthetic biology methods to develop novel cell, tissue, and animal based model systems to study the fundamental mechanism of cancer development, progression, and/or response to treatment
- Using synthetic biology methods to develop and evaluate novel diagnostic, preventive, and therapeutic approaches relevant to human cancer

NCCIH Statement of Interest

NCCIH supports a diverse portfolio of natural products research. This includes the use of systems biology technology to better understand the biosynthesis of natural products. NCCIH encourages applications to this initiative aimed at elucidating biosynthetic pathways for high value, plant based, natural products and developing ways to improve their production in either native or heterologous hosts. In the context of this initiative, high value, plant based, natural products are defined as those which have well established therapeutic properties for humans. Use of systems biology for the engineering and production of compounds which are not known from a natural source are considered low priority for NCCIH. Examples of research of interest to NCCIH include, but are not limited to:

- Use of synthetic biology tools to identify biosynthetic gene clusters or pathways responsible for the biosynthesis of plant based natural products
- Use of synthetic biology tools to improve production of plant based natural products from their native sources
- Use of synthetic biology tools to assemble biosynthetic machinery and optimize yield for plant based natural products into heterologous hosts

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

Letter of Intent: October 8, 2017

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.
This FOA is being issued with limited due dates to accommodate the transition from FORMS-D to FORMS-E application packages. This FOA will be reissued for additional due date(s) on or after January 25, 2018.

Grant Program: Assay development and screening for discovery of chemical probes or therapeutic agents (R01)
Agency: National Institutes of Health PAR-17-438
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-17-438.html
Brief Description: Projects for this FOA may span up to three stages of discovery research:
1) assay development;
2) primary screen implementation; and
3) hit validation.
For applications requesting support for more than one stage, demonstration of feasibility is needed, including strong justification and supporting preliminary data for the stages proposed. Areas to be considered for each stage are described below and given in greater detail in Section IV (Application and Submission Information, PHS 398 Research Plan).
1. Assay Development
This FOA seeks to apply new knowledge and screening technologies to develop assays for novel targets and pathways. Projects for assay development should emphasize the design and validation of creative approaches to assay biological and disease processes that have potential to be used for chemical probe or drug discovery. Assays focusing on areas and approaches that have been extensively studied should be avoided unless a strong rationale is provided for additional studies in the projected area. Targets associated with rare and neglected diseases are encouraged.
Proposed primary screening assays should be relevant to the scope of the research within at least one of the participating NIH ICs focusing on specific diseases or on relevant basic physiology, cell biology, or developmental processes that provide insight into a disease.
2. Primary Screen Implementation
Applicants are encouraged to collaborate with an experienced screening facility, particularly if high throughput screening (HTS) is planned. The screening facility may provide advice such as identification and selection of commercial HTS assay reagents, and suitable HTS assay format and readout. In addition, the screening facility may be able to provide assistance in adapting assays to an HTS format (e.g., 1536-well or 384-well microplate) and performing a pilot screen of a small library of compounds. Further, the researchers might seek advice from the screening laboratory about orthogonal assays to validate the screening hits, and about chemical improvement of the initial hits via a structure-activity relationship (SAR) study following hit validation.
3. Hit validation
Hits from a primary screen may be systematically assessed using a cascade of follow-up assays to efficiently and effectively remove false positives. Primary HTS assays typically generate hundreds to thousands of hits, many of which are false positives or are chemically intractable. Hits from smaller scale primary screens are also likely to generate false positives or chemically intractable molecules that require additional screens.
Awards: Application budgets are not limited but need to reflect the actual needs of the proposed project.
Letter of Intent: 30 days prior to the application due date

Deadline: 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: Discovery of Cell-based Chemical Probes for Novel Brain Targets (R21)
Agency: National Institutes of Health PAR-17-335
RFP Website: https://grants.nih.gov/grants/guide/pa-files/PAR-17-335.html
Brief Description: Technological innovations in chemical synthesis, cheminformatics, structural biology, and high throughput bioactivity and drug property assays have allowed rapid discovery of novel, small-molecule probes for the study of disease-related biological processes and mechanisms in academic environments.
Through this funding opportunity NIMH, NIA, NICHD and/or NIDCD encourage applications to advance the discovery of small molecule chemical probes for use in cell-based studies. This FOA aims to stimulate research in: 1) discovery and development of novel cell-based chemical probes for their potential use in understanding biological processes relevant to the missions of participating NIH Institutes; and 2) use of chemical probes to discover and/or validate novel biological targets that will inform studies of brain disease mechanisms. Emphasis will be placed on the research that provides new insight into important disease-related biological targets and biological processes. For example, applications may involve emerging therapeutic targets and mechanisms for the discovery of chemical probes that may lead to further development of therapeutics or provide insight into the biology of relevant diseases.
This program creates an opportunity for integrated research in biology and chemistry on structure-activity relationships (SAR) of novel compounds through an iterative and parallel optimization process, to advance successful development of cell-based chemical probes. Applicants to this FOA should have in hand the starting compounds ("validated hits") for chemical optimization and bioassays for testing new analog compounds. The iterative bioassay and chemical optimization cycles may encompass:

- Cellular activity (potency in cellular assays);
- Cellular penetration (cellular permeability measured in relevant assays: Caco-2/MDR1-MDCK/PAMPA);
- Aqueous solubility;
- Selectivity (assessment of on-target and off-target effects in cells);
- Cellular target engagement (mechanism of action)

The above-mentioned areas of investigation are representative and not meant to be all-inclusive.
Projects proposing the development of phenotypic chemical probes are not suitable for this FOA.
The main emphasis of projects submitted under this FOA should be in the discovery of cell-based chemical probes rather than chemical leads for drug or therapeutic discovery. Applicants interested in developing *in vivo* chemical probes may wish to apply using the companion R01 mechanism (PAR-17-336. Projects seeking resources for later stage drug development are not suitable for this FOA.
Awards: Direct costs are limited to $275,000 over a two-year period, with no more than $200,000 in direct costs allowed in any single year.
Letter of Intent: Not required
Deadline: Standard dates apply , by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.

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-17-002
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 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.

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.

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

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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

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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

Department of Energy

Grant Program: Advanced Manufacturing Graduate-Level Traineeships
Agency: Department of Energy DE-FOA-0001790
Website: https://eere-exchange.energy.gov/#FoaId365cf14b-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?solId=%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 ±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

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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

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Bayer Grants4Targets

Grant Program: Alfred P. Sloan Foundation Grants
Agency: Bayer Foundation
Website: https://grants4targets.bayer.com/home/pharma/
Brief Description: Bayer is offering grants for researchers investigating *novel drug targets* in:
· Oncology
(Focus on oncogenic signaling)
· Gynecology
(Focus on novel treatment options for endometriosis, uterine fibroids and polycystic ovary syndrome (PCOS).
· Heart & Vascular Diseases

(Focus on Atrial Fibrillation, Chronic Heart Failure, Peripheral Artery Disease, Cardioprotective mechanisms.)

· Specialty Lung Diseases

(Focus on Idiopathic Pulmonary Fibrosis, Interstitial Lung Disease, COPD- Frequent Exacerbators, Chronic Cough, Pulmonary Hypertension).

· Kidney Diseases

(Focus on Hypertensive Nephropathy, Diabetic Kidney Disease, Acute Kidney Injury, Chronic Allograft Nephropathy, Polycystic Kidney Disease)

· Hemostatic & Acute Organ Disorders

(Focus on Acute Respiratory Distress Syndrome, DIC, SIRS, Acute Coronary Syndrome, Stroke Prevention in Atrial Fibrillation, Venous Thrombosis, Hemophilia A).

- Target must be a nucleic acid or a protein (e.g. an enzyme, a receptor) whose activity can be modified by a drug (drug can be a small-molecular-weight chemical compound or a biological, such as an antibody or a recombinant protein)
- Target should have shown to be effective/mechanistically involved in the disease by relevant in vitro or in vivo models
- Target is disease-modifying and/or has a proven function in the pathophysiology of a disease

Awards: There are two types of grants,

Support grants (€ 5,000 - €10,000)*

For druggable targets that are at a very early stage of discovery.

Focus grants (€ 10,000 - €125,000)*

For more mature ideas, e.g. to address specific aspects of a target as a first step towards transferring it to the drug discovery process.

Proposal Deadline: August 31, 2017

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

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Simon Foundation

Grant Program: Simons Grants for Sabbaticals in Math and Theoretical Physics

Agency: Simon Foundation

Website: https://www.simonsfoundation.org/funding/funding-opportunities/mathematics-physical-sciences/simons-fellow-program/

Brief Description: *Grants awarded will be restricted to sabbatical-eligible faculty who wish to use the grant for the purpose of extending a single term sabbatical leave to a full academic year.*

Proposal Deadline: September 28, 2017

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

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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

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Streamlyne Update

513 proposals were submitted in FY17. Since January 17, 307 proposals were submitted through streamline. In the last quarter (April-July), 34 proposals were submitted through the System-to-System (S2S) Streamlyne-Grants.gov module. 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
973-596-4483; irp3@njit.edu
