

# NJIT Research Newsletter

Issue: ORN-2016-017

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*NJIT Research Newsletter* includes recent awards, and announcements of research related seminars, webinars, national and federal research news related to research funding, and **Grant Opportunity Alerts**. The Newsletter is posted on the NJIT Research Website <http://www.njit.edu/research/>

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**Recent Awards:** Page 1

**In the News:** Page 2  
(Related to research funding)

**Webinar Events and Announcements:** Page 4

**Grant Opportunities:** Page 6

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## Recent Research Grant and Contract Awards

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

**PI:** Eric Fortune (PI)

**Department:** Biology

**Grant/Contract Project Title:** Collaborative Research: Neural Mechanisms of Active Sensing

**Funding Agency:** NSF

**Duration:** 04/15/16-03/31/20

**PI:** Alexei Khalizov (PI)

**Department:** Chemistry and Environmental Science

**Grant/Contract Project Title:** The 2016 ACS (American Chemical Society) Renyi Zhang Symposium

**Funding Agency:** NSF

**Duration:** 05/01/16-04/30/17

**PI:** Zhi Wei (PI)

**Department:** Computer Science

**Grant/Contract Project Title:** Elucidating neural crest-like reprogramming in melanoma

**Funding Agency:** NIH

**Duration:** 02/11/15-01/31/17

**PI:** Colette Santasieri (PI), Deane Evans (Co-PI)

**Department:** NJIT and College of Architecture and Design

**Grant/Contract Project Title:** A Balanced Approach to Protecting People, Property, and Nature  
in Historic Greenwich Township, NJ

**Funding Agency:** NOAA

**Duration:** 02/01/16-06/30/16

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

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

**Senate Appropriations Committee:** the Senate proceeded with consideration of the Energy and Water Appropriations Bill this week. The Senate bill would provide \$5.4 billion for the DOE Office of Science, a 0.9% increase over FY16, but short of the \$5.572 billion request. Notwithstanding warnings from Democrats to keep appropriations bills free of “poison pill” objectionable policy provisions, floor action was brought to a halt by a proposed amendment by Senator Tom Cotton. The amendment would prohibit the purchase of heavy water from Iran, a byproduct of nuclear fuel processing that can be used in the production of nuclear weapons. The Energy and Water Bill, which was to be a model for other appropriations bills, now faces an uncertain future.

**Committee on Armed Services** released the FY17 [National Defense Authorization Act](#), addressing policy issues and recommending funding levels for DOD programs including research and development. The bill recommends a slight increase of 0.5% over the request level for basic research and 0.3% for science and technology overall. This slight increase falls short of restoring the 4.1% reduction in science and technology funding contained in the President's FY17 request.

**NASA's ROSES 2016 Clarifications, corrections and amendments** Amendment 8: A.47 Citizen Science for Earth Systems Program. The primary goal of the Citizen Science for Earth Systems Program is to develop and implement capabilities to harness voluntary contributions from members of the general public to advance understanding of the Earth as a system. The program complements NASA's capability of observing the Earth globally from space, air, land, and water by engaging the public in NASA's mission to "drive advances in science, technology, aeronautics, space exploration, economic vitality, and stewardship of the Earth" and [Strategic Goal 2.2](#) to "advance knowledge of Earth as a system to meet the challenges of environmental change and to improve life on our planet". The program aims to advance the use of citizen science in scientific research about the Earth by directly supporting citizen science activities, as well as by developing technology to further citizen science research.

For the purpose of this solicitation, citizen science is defined as efforts or projects which use voluntary public participation in the scientific endeavor, including – but not limited to – formulating research questions, conducting experiments, collecting and analyzing data collected by citizen and/or professional scientists, interpreting results, making new discoveries, and/or developing technologies and applications. Crowdsourcing, another frequently used term describing voluntary contributions, is included under citizen science in this solicitation. (See the

Federal Crowdsourcing and Citizen Science Toolkit for further explanations and guidance: <https://crowdsourcing-toolkit.sites.usa.gov/>).

Through this solicitation, two types of proposals are sought – citizen science research and low cost sensor deployment for the collection of well calibrated citizen science data. Notices of Intent (NOIs) are requested by May 27, 2016, and proposals are due by July 21, 2016. Questions concerning this program element may be directed to Kevin Murphy at [kevin.j.murphy@nasa.gov](mailto:kevin.j.murphy@nasa.gov)

**National Science Foundation:** Earlier this year, the NSF announced a new initiative for a [Brain Observatory](#). One underlying rationale for this initiative was to encourage shared research infrastructure and interdisciplinary, multi-institutional collaborations. The NSF has now issued a [Dear Colleague Letter](#) specific to advanced computing resources and cyberinfrastructure. The intent is to introduce high-performance computing into workflow systems, software infrastructure, and networking capabilities enabling the integration of data derived from different systems. The letter encourages two types of proposals: (1) conferences and community workshops that bring together neuroscientists and computational infrastructure developers, and (2) Early-Concept Grants for Exploratory Research (EAGERs) proposals for innovative concepts which will lead to the deployment of computational infrastructure resources for a broad base of users.

**Advanced Manufacturing Trimmed:** The House appropriations panel provides \$214 million advanced manufacturing, \$14.5 million below current spending and \$47 million below Obama's budget request. Nevertheless, it's willing to fund Critical Materials Energy Innovation Hub, the Manufacturing Demonstration Facility, the Carbon Fiber Test Facility, and six Clean Energy Manufacturing Innovation (CEMI) Institutes.

**Food, Energy, Waste:** House appropriators want DOE and the Department of Agriculture to address, together, "the energy and water challenges inherent in four-season production systems." Research projects at various DOE labs and the Agricultural research Service should develop "affordable, deployable, energy- and water-efficient food production platforms, beginning in food-insecure communities across the country." Members also encourage research on how biosolids from wastewater treatment plants can be used to extract fuels and precursors, as well as "to reduce the volume of waste materials . . . produce byproducts to meet chemical supply shortages, such as phosphorous, and . . . enhance the subsequent development of technologies to deliver important chemical feedstocks, including hydrogen."

**Nano Excitement:** Explaining its budget for nanotechnology research facilities and infrastructure, a White House [report](#) says: "Over its lifetime, the NNI has successfully fostered the transition of nanotechnology discoveries from lab to market and has enabled the growth of new industries that have exploited the unique properties of the nanoscale to make products that have enhanced our way of life."

**New Directions For Networking, IT R&D:** According to a White House [budget supplement](#), these include: **robotics and intelligent systems** to advance physical and computational agents that complement, augment, enhance, or emulate human physical capabilities or human intelligence; **large-scale data management and analysis** to develop the ability to analyze and extract knowledge and insight from large, diverse, and disparate sources of data, including structures for data capture, curation, management, and access; **high-capability computing systems** (HCS) and associated application software, communications, storage, data

management, and HCS infrastructure to meet agency mission needs; **research and development** to enable advancements in high-capability computing systems, spanning the hardware, software, architecture, system performance, computational algorithms, data analytics, development tools, and software methods for extreme data- and compute-intensive workloads, and developing **fundamentally new approaches** to high-capability computing systems."

**GRAND CHALLENGES:** "In 2008 a committee of distinguished engineers, scientists, entrepreneurs, and visionaries set out to identify the most important, tractable engineering system challenges that must be met in this century for human life as we know it to continue on this planet. Seven of the 18 committee members who formulated the Grand Challenges for Engineering in 2008 reflected on what has happened in the seven years since. *Grand Challenges for Engineering: Imperatives, Prospects, and Priorities* summarizes the discussions and presentations from this forum." [Read the report. http://www.nap.edu/catalog/23440/grand-challenges-for-engineering-imperatives-prospects-and-priorities-summary-of](http://www.nap.edu/catalog/23440/grand-challenges-for-engineering-imperatives-prospects-and-priorities-summary-of)

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### **Events and Announcements**

#### **Event: Webinar: Understanding SBIR & STTR Phase I Application Process**

**When: May 4, 2016 2.00 PM-3.00 PM**

**Where:** [http://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=138377&org=NSF](http://www.nsf.gov/events/event_summ.jsp?cntn_id=138377&org=NSF)

**Brief Description:** Join this webinar to learn more about what you need to submit an application for Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR) funding. SBIR Program Director Rajesh Mehta will walk you through the process and answer questions. **Advance registration is required; to register visit:** <http://bit.ly/20ULzLX>. Prior to the webinar, feel free to browse our [YouTube channel](#) and read the [preparation booklet](#) for detailed step-by-step guides to assist applicants through the Phase I proposal submission process.

§ [Current SBIR Solicitation](#) (Deadline: June 16th)

§ [Current STTR Solicitation](#) (Deadline: June 20th)

The NSF Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR) program seeks to transform scientific discovery into societal and economic benefit by catalyzing private sector commercialization of technological innovations. The program increases the incentive and opportunity for startups and small businesses to undertake cutting-edge, high-quality scientific research and development. We provide grants in phases: a proof-of-concept / feasibility grant (6-12 months, \$225k) can potentially be followed by a longer development grant (2 years, \$750k).

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#### **Event: Webinar: Applying Evidence-Based Teaching Practices in Computing Education**

**When: June 1, 2016 1.00 PM-4.00 PM**

**Where:** <https://docs.asee.org/public/Webinars/2016ComputingWorkshopFlyer.pdf>

**Brief Description:** Computers are now as important to research as telescopes and test tubes, but most researchers in STEM are still not taught the equivalent of basic lab skills for computing. In this interactive 3-hour online workshop, Software Carpentry co-founder Greg Wilson will introduce several evidence-based teaching practices and show how they can be used when teaching graduate and undergraduate STEM students.

Attendees will learn:

- The cognitive differences between novices, competent practitioners, and experts
- How and why to design formative assessment instruments that have diagnostic power
- Motivation and demotivation, and their effect on both teachers and learners
- How to scale the construction and maintenance of shared lesson materials
- Popular myths about education and learning
- Teaching as a performance art

Who should attend?

- Computing and engineering/engineering technology graduate students
- Computing and engineering/engineering technology postdocs
- Computing and engineering/engineering technology students who are pursuing academic careers
- New computing and engineering/engineering technology faculty
- Students interested in engineering education

Register at <https://docs.asee.org/public/Webinars/2016ComputingWorkshopFlyer.pdf>.

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**Event: IEEE Webinar: The Future of Systems Modeling: Exploring SysML Today and Tomorrow**

**When: May 18, 2016 11.00 AM**

**Where:**

<https://event.on24.com/eventRegistration/EventLobbyServlet?target=reg20.jsp&referrer=&eventid=1175566&sessionid=1&key=C65A04E52C205E39539AF4E9BD8A48C5&partnerref=SOL&sourcepage=register>

**Brief Description:** Systems modeling is one of the hottest topics in engineering today. This one-hour presentation will break down the vision, value and practical benefits of system modeling, with an emphasis on the standards-based SysML language. We'll cover a short history of systems modeling, explore the pros and cons of alternative approaches, then provide you with a whirlwind tour of the six key principals and seven core diagrams of the SysML language. Finally we'll take a sneak peek into the future of the SysML: integration with other systems engineering tools, asset-based modular design and model-based product line engineering (MB-PLE). Don't miss the opportunity to get a thorough grounding in this important and rapidly expanding technology.

**About the Speakers:** Matthew Hause is an Engineering Fellow at PTC, the co-chair of the UPDM group a member of the OMG Architecture Board, and a member of the OMG SysML specification team. He has been developing multi-national complex systems for over 35 years. He started out working in the power systems industry and has been involved in military command and control systems, process control, communications, SCADA, distributed control, office automation and many other areas of technical and real-time systems. Matthew studied Electrical Engineering at the University of New Mexico and Computer Science at the University of Houston, Texas.

**MODERATOR:** Dexter Johnson is the author of IEEE Spectrum's online blog The Nanoclast. He has researched and written reports and analysis in the areas of nanotechnology, sensors, IT, advanced manufacturing and economic trends within a number of different industries. He has been the program director for international conferences in the areas of telecommunications, digital content delivery and nanotechnology. In addition to his work at IEEE Spectrum, Dexter is a senior analyst with Cientifica, a UK-based business intelligence company for emerging technologies

**Register at the above URL.**

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## **Grant Opportunity Alerts**

Keywords and Areas Included in Grant Opportunity Alerts:

**NSF:** Communications, Circuits, and Sensing-Systems (CCSS); GeoPRISMS Program; Electronics, Photonics and Magnetic Devices (EPMD); Energy, Power, Control, and Networks (EPCN)

**NIH:** NINDS Advanced Postdoctoral Career Transition Award to Promote Diversity in Neuroscience Research (K22); NINDS Faculty Development Award to Promote Diversity in Neuroscience Research (K01); Growing Great Ideas: Research Education Course in Product Development and Entrepreneurship for Life Science Researchers (R25); NLM Career Development Award in Biomedical Informatics and Data Science (K01)

**Department of Defense/US Army/DARPA/ONR:** Biological Technologies; Autism Research Program: Idea Development Award; Basic Research Challenge (BRC) Program

**Department of Energy:** Renewable Energy To Fuels Through Utilization Of Energy-Dense Liquids (REFUEL)

**NASA:** ROSES 2016: Terrestrial Hydrology

**National Endowment for Humanities:** Grant Program: Research and Development Grants

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## **Grant Opportunities**

### **National Science Foundation**

**Grant Program: Communications, Circuits, and Sensing-Systems (CCSS);**

**Agency: National Science Foundation PD 16-7564**

**RFP Website:**

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505248&org=NSF&sel\\_org=NSF&from=fund](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505248&org=NSF&sel_org=NSF&from=fund)

**Brief Description:** The **Communications, Circuits, and Sensing-Systems (CCSS) Program** is intended to spur visionary systems-oriented activities in collaborative, multidisciplinary, and integrative engineering research. CCSS supports systems research in hardware, signal processing techniques, and architectures to enable the next generation of cyber-physical systems (CPS) that leverage computation, communication, and algorithms integrated with physical domains. CCSS supports innovative research and integrated educational activities in micro- and nano- electromechanical systems (MEMS/NEMS), communications and sensing systems, and cyber-physical systems. The goal is to design, develop, and implement new complex and hybrid systems at all scales, including nano and macro, that lead to innovative engineering principles and solutions for a variety of application domains including, but not limited to, healthcare, medicine, environmental and biological monitoring, communications, disaster mitigation, homeland security, intelligent transportation, manufacturing, energy, and smart buildings. CCSS also supports integration technologies at both intra- and inter- chip levels, new and advanced radio frequency (RF), millimeter wave and optical wireless and hybrid communications systems architectures, and sensing and imaging at terahertz (THz) frequencies. Proposals for the CCSS program may involve collaborative research to capture the breadth of expertise needed for such multidisciplinary integrative activities. ECCS will consider supporting a limited number of small team proposals of three or more Investigators from different disciplines and/or universities.

*Areas of interest include:*

**Hao Ling**

- RF, Analog, and Mixed Signal Integrated Circuits and Systems
- RF, Microwave, Millimeter-Wave and THz Technology
- Energy-Efficient, Low-Noise, Reconfigurable Electronics
- Antennas and Wave Propagation for Communications and Sensing
- High-Fidelity Modeling and Simulation of Electronic, Photonic and Electromagnetic Systems

**Chengshan Xiao**

- RF/Wireless, Optical, and Hybrid Communications and Networking
- Integrated Sensing, Communication, and Computational Systems
- Spectrum Access and Spectrum Sharing, Cognitive Radio
- Signal Processing and Compressive Sampling
- Cyber Physical Systems and Security

**Mona Zaghoul**

- Micro, Nano, and Bio Systems (MEMS/NEMS)
- Chemical, Biological, and Physical Sensors, Sensors and Actuators, and Electronic Interfaces
- Ultra-Low Power Wearable and Implantable Sensing and Imaging Systems

Real-Time Monitoring and Stimulation of the Brain and Other Body Functions in Natural Environments.

**Awards:** Various standard grants.

**Letter of Intent:** Not Required

**Full Proposal Submission Due Date:**

Full Proposal Window: October 1, 2016 - November 1, 2016

ECCS Submission Window

October 1 - November 1, Annually Thereafter

Supplement Deadline Date: April 3, 2017

ECCS REU/RET Supplements

April 1, Annually Thereafter

**Contacts:**

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Chengshan Xiao	<a href="mailto:cxiao@nsf.gov">cxiao@nsf.gov</a>	(703) 292-8339
Mona Zaghoul	<a href="mailto:mzaghoul@nsf.gov">mzaghoul@nsf.gov</a>	(703) 292-8339

**Grant Program: GeoPRISMS Program**

**Agency: National Science Foundation NSF 16-560**

**RFP Website:** <http://www.nsf.gov/pubs/2016/nsf16560/nsf16560.htm>

**Brief Description:** GeoPRISMS (Geodynamic Processes at Rifting and Subducting Margins) Program investigates the coupled geodynamics, earth surface processes, and climate interactions that build and modify continental margins over a wide range of timescales. These interactions cross the shoreline and have applications to margin evolution and dynamics, construction of stratigraphic architecture, accumulation of economic resources, and associated geologic hazards and environmental management. The GeoPRISMS Program includes two broadly integrated science initiatives (*Subduction Cycles and Deformation* and *Rift Initiation and Evolution*), linked by five overarching scientific topics and themes, where transformative advances are likely to occur in the decade 2011-2020, and where a focused scientific program could be most effective. These overarching science topics include 1) Origin and evolution of continental crust; 2) Fluids, magmas and their interactions; 3) Climate-surface-tectonics

feedbacks; 4) Geochemical cycles; and 5) Plate boundary deformation and geodynamics. Each of the initiatives has identified primary sites for focused investigations, as well as thematic studies that will complement primary site studies.

Further information and a science plan for the program detailing each initiative and the associated thematic studies, as well as the overarching themes, can be found on the GeoPRISMS website at <http://www.geoprisms.org/>.

**Awards:** Anticipated Funding Amount: \$4,000,000 pending the availability of funds.

**Letter of Intent:** Not Required

**Full Proposal Submission Due Date:** July 26, 2016

**Contacts:**

- Maurice Tivey, Program Director, OCE: Marine Geology & Geophysics, telephone: (703) 292-7710, email: [mtivey@nsf.gov](mailto:mtivey@nsf.gov)
- Jennifer Wade, Program Director, EAR: Petrology & Geochemistry, telephone: (703) 292-4739, email: [jwade@nsf.gov](mailto:jwade@nsf.gov)

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### **Grant Program: Electronics, Photonics and Magnetic Devices (EPMD)**

**Agency: National Science Foundation NSF PD 16-1517**

**RFP Website:**

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505250&org=NSF&sel\\_org=NSF&from=fund](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505250&org=NSF&sel_org=NSF&from=fund)

**Brief Description:** The **Electronics, Photonics, and Magnetic Devices (EPMD) Program** seeks to improve the fundamental understanding of devices and components based on the principles of micro- and nano-electronics, optics and photonics, optoelectronics, magnetics, electromechanics, electromagnetics, and related physical phenomena. The *Electronics & Magnetic Devices* component of EPMD enables discovery and innovation advancing the frontiers of nanoelectronics, spin electronics, molecular and organic electronics, bioelectronics, biomagnetics, non-silicon electronics, and flexible electronics. It also addresses advances in energy-efficient electronics, sensors, low-noise, power electronics, and mixed signal devices. The *Optic & Photonic Devices* component of EPMD supports research and engineering efforts leading to significant advances in novel optical sources and photodetectors, optical communication devices, photonic integrated circuits, single-photon quantum devices, and nanophotonics. It also addresses novel optical imaging and sensing applications and solar cell photovoltaics.

EPMD further supports topics in quantum devices and novel electromagnetic materials-based device solutions from DC to high-frequency, millimeter-wave and THz, monolithic integrated circuits built with them, and electromagnetic effects, components needed for communications, telemedicine, and other wireless applications. Wide bandgap semiconductor devices, device design, processing and characterization, as well as metamaterial and plasmonic based devices are of interest. Novel electronic, photonic and magnetic devices with organic, inorganic or hybrid materials on conformable or transparent substrates are also of interest, as are carbon-based and emerging 2D atomic-layered materials for electronic, photonic, magnetic, energy harvesting and other related device application areas. Interest also extends to novel ideas for next generation memory devices.

The program supports cooperative efforts with the semiconductor industry on new nanoelectronics concepts beyond the scaling limits of silicon technology. EPMD additionally emphasizes emerging areas of diagnostic, wearable and implantable devices, and supports manipulation and real-time measurement with nanoscale precision through new approaches to imaging and metrology.



Proposals for the EPMD program may involve collaborative research to capture the breadth of expertise needed for such multidisciplinary integrative activities. ECCS will consider supporting a limited number of small team proposals of three or more investigators from different disciplines and/or universities.

**Awards:** Standard Grants.

**Letter of Intent:** Not Required.

**Full Proposal Deadlines:** Full Proposal Window: October 1, 2016 - November 1, 2016

**Contacts:**

<a href="mailto:Usha.Varshney@nsf.gov">Usha Varshney</a>	<a href="mailto:uvarshne@nsf.gov">uvarshne@nsf.gov</a>	(703) 292-8339
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**Grant Program: Energy, Power, Control, and Networks (EPCN)**

**Agency: National Science Foundation NSF PD 16-7607**

**RFP Website:**

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505249&org=NSF&sel\\_org=NSF&from=fund](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505249&org=NSF&sel_org=NSF&from=fund)

**Brief Description:** Recent advances in communications, computation, and sensing technologies offer unprecedented opportunities for the design of cyber-physical systems with increased responsiveness, interconnectivity and automation. To meet new challenges and societal needs, the Energy, Power, Control and Networks (EPCN) Program invests in systems and control methods for analysis and design of cyber-physical systems to ensure stability, performance, robustness, and security. Topics of interest include modeling, optimization, learning, and control of networked multi-agent systems, higher-level decision making, and dynamic resource allocation as well as risk management in the presence of uncertainty, sub-system failures and stochastic disturbances. EPCN also invests in adaptive dynamic programming, brain-like networked architectures performing real-time learning, and neuromorphic engineering. EPCN supports innovative proposals dealing with systems research in such areas as energy, transportation, and nanotechnology. EPCN places emphasis on electric power systems, including generation, transmission, storage, and integration of renewables; power electronics and drives; battery management systems; hybrid and electric vehicles; and understanding of the interplay of power systems with associated regulatory and economic structures and with consumer behavior. Also of interest are interdependencies of power and energy systems with other critical infrastructures. Topics of interest also include systems analysis and design for energy scavenging and alternate energy technologies such as solar, wind, and hydrokinetic. The program also supports innovative tools and test beds, as well as curriculum development integrating research and education. In addition to single investigator projects, EPCN encourages cross-disciplinary proposals that benefit from active collaboration of researchers with complementary skills.

Proposals for the EPCN program may involve collaborative research to capture the breadth of expertise needed for such multidisciplinary integrative activities. ECCS will consider supporting a limited number of small team proposals of three or more Investigators from different disciplines and/or universities.

Areas covered by the EPCN Group (Abed, Baheti and Khaligh):

- Control Theory and Hybrid Dynamical Systems
- Networked Multi-agent Systems
- Cyber Physical Systems Modeling and Control
- System Theory for Biology and Medicine; Modeling of the Brain

- Control and Optimization in Buildings, Transportation, and Robotics
- Adaptive and Intelligent Systems; Neural Networks
- Energy Harvesting, Storage Devices and Systems
- Solar and Wind Energy and Integration of Renewables with Grid
- Monitoring, Protection and Cyber Security of Power Grid
- Advanced Power Electronics and Electric Machines
- Electric and Hybrid Electric Vehicles
- Innovative Grid-tied Power Electronic Converters
- Policy, Economics, Consumer Behavior and the Power Grid

**Awards:** Standard Grants.

**Letter of Intent:** Not Required.

**Full Proposal Deadlines:** Full Proposal Window: October 1, 2016 - November 1, 2016

**Contacts:**

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## **National Institutes of Health**

### **Grant Program: NINDS Advanced Postdoctoral Career Transition Award to Promote Diversity in Neuroscience Research (K22)**

**Agency: National Institutes of Health PAR-16-220**

**RFP Website:** <http://grants.nih.gov/grants/guide/pa-files/PAR-16-220.html>

**Brief Description:** The overall goal of the NIH Research Career Development program is to help ensure that a diverse pool of highly trained scientists is available in appropriate scientific disciplines to address the Nation's biomedical, behavioral, and clinical research needs. In addition to this opportunity, NIH Institutes and Centers (ICs) support a variety of other mentored career development programs designed to foster the transition of new investigators to research independence. These other programs may be more suitable for particular candidates. NIH also supports non-mentored career development programs for independent investigators. More information about Career programs may be found at the [NIH Extramural Training Mechanisms](#) website.

The candidate must propose a research project that will be pursued during Phase I and continue into an independent project during Phase II of the award. Consequently, the K22 applicant must have ownership of the project and by explicit agreement of the mentor, must be able to take the project with him/her upon transition to independence. The K22 award will provide up to 5 years of support in two phases. Phase II support will have a maximum duration of 3 years. If an awardee expends the maximum time in Phase I (3 years), Phase II will be limited to two years of support.

The two award phases are intended to be continuous in time. Therefore, although exceptions may be possible in limited circumstances, Phase II awards will generally only be made to those K22 PDs/PIs who accept independent tenure-track (or equivalent) faculty positions by the end of the Phase I award period. Phase II of the K22 award is not automatic. It will be awarded, following administrative review, only if the K22 awardee obtains a full-time tenure-track or equivalent faculty position. This position must include an appropriate startup package that is similar to that currently provided to others hired by the department into a similar position, and which is sufficient to promote success in the applicant's research area,

appropriate protected time for research (a minimum of 75%) and access to students and resources normally associated with such a position.

Once the tenure track (or equivalent) position has been secured, NINDS senior staff will evaluate the Phase II materials (see below) to ensure that all programmatic requirements are met prior to continuation of the K22 award. Awardees approved to proceed with the second phase of support will receive notification of approval in writing from the NINDS. Updated information from the extramural institution on behalf of the candidate will be required for the NINDS to process the second phase of the K22. The sponsoring institution must demonstrate a commitment to the candidate by providing protected research time and space needed to perform the proposed research. It is strongly encouraged that Phase II occurs at an institution different from that where the Phase I research occurred. However, as long as the faculty position and start-up package are appropriate, and the candidate has full research independence, Phase II may occur at the Phase I institution. If the applicant remains at the same institution, there must be a clear explanation of how independence from the mentor will be established. The details of the requirements for the activation of the Phase II of the K22 award are described in Section VI of this announcement.

During Phase II, it is expected that K22 recipients will apply for independent research grant support as soon as possible. K22 recipients are strongly encouraged to apply for R01 or equivalent Federal or Foundation awards within the final two years of their K22 award. NINDS support for the K22 program relies equally on scientific merit and programmatic considerations. Consequently, we strongly recommend that potential applicants consult Scientific/Research Staff at NINDS before preparing an application. NINDS will not support projects, regardless of the results of merit review, if they do not fulfill current programmatic priorities at NINDS

**Awards:** NINDS will contribute up to \$ 95,000 commensurate with salary and effort, as well as fringe benefits during phase II. In Phase I, the NIH will contribute salary commensurate with the applicant institution's salary structure for persons of equivalent qualifications, experience, and rank, up to \$50,000 plus fringe benefits per year. Further guidance on budgeting for career development salaries is provided in the SF424 (R&R) Application Guide. Indirect Costs (also known as Facilities & Administrative [F&A] Costs) are reimbursed at 8% of modified total direct costs.

**Letter of Intent:** Not Required.

**Deadline:** [Standard dates](#) apply, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.

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

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## **Grant Program: NINDS Faculty Development Award to Promote Diversity in Neuroscience Research (K01)**

**Agency:** National Institutes of Health PAR-16-219

**RFP Website:** <http://grants.nih.gov/grants/guide/pa-files/PAR-16-219.html>

**Brief Description:** The overall goal of the NIH Research Career Development program is to help ensure that a diverse pool of highly trained scientists is available in appropriate scientific disciplines to address the Nation's biomedical, behavioral, and clinical research needs. In addition to this opportunity, NIH Institutes and Centers (ICs) support a variety of other mentored career development programs designed to foster the transition of new investigators to research independence. These other programs may be more suitable for particular

candidates. NIH also supports non-mentored career development programs for independent investigators. More information about Career programs may be found at the [NIH Extramural Training Mechanisms](#) website.

The purpose of the Faculty Development Award to Promote Diversity in Neuroscience Research is to support an intensive, supervised career development and scientific mentoring experience for promising junior investigators (who are in first 3 years of a faculty tenure track or equivalent position at the time of award) from backgrounds underrepresented in biomedical research. The proposed career development experience is expected to substantially contribute to the research capabilities of the applicant, provide protected time from teaching/other duties and provide resources to hone skills in grant writing and publication of high impact research. Presently, data from the National Science Foundation suggests that underrepresented racial and ethnic minorities, and individuals with disabilities are underrepresented in faculty-level biomedical research careers. For example, in surveys conducted by the Society for Neuroscience Committee on Neuroscience Departments and Programs, diverse faculty represent only 5% of the tenure-stream neuroscience faculty and 3% of non-tenure-stream faculty members ([2011 Survey Report Neuroscience Departments and Programs](#)). This is compared to a 14% predoctoral and 9% postdoctoral diverse trainee representation within the neuroscience field. As demonstrated in a 2011 NIH Individual Mentored Career Development Awards Program Evaluation, receipt of an individual mentored career development award had a measurable and significant impact on program participants, as seen in their publication records and subsequent applications for and receipt of NIH grants. Collectively, researchers who participated in NIH K programs had a significantly higher R01 success rate than those with no prior career development support. It is envisioned that funding support from the Faculty Development Award to Promote Diversity in Neuroscience Research will enhance the pool of well-trained researchers and health professionals who are competitively funded to conduct neuroscience research.

The expectation is that through this sustained period of protected research time and career development exposure, awardees will be able to accelerate their independent research careers and become competitive for new research project grant (R01) funding. Applicants must justify the need for this award and make a convincing case that the proposed period of support will substantially enhance their careers as independent investigators in neuroscience research. Mentoring is expected to be appropriate for this stage of career and should focus on enhancing tenure track (or equivalent) activities or metrics (i.e., helping the junior faculty member to navigate institutional expectations, scientific networks, and practices that are relevant to productivity and advancement at the institution). The sponsoring institution must also be able to demonstrate a strong commitment to the development of the candidate as a productive, independent investigator by providing protected research time and space needed to perform the proposed research.

Prior to preparing an application, individuals are strongly encouraged to contact the program official listed at the end of this announcement to discuss their training and career development needs. NINDS support for K01 program relies equally on scientific merit and programmatic considerations. NINDS will not support projects, regardless of the results of merit review, if they do not fulfill current programmatic priorities at NINDS.

**Awards:** NIH will contribute \$100,000 per year toward the research development costs of the award recipient, which must be justified and consistent with the stage of development of the candidate and the proportion of time to be spent in research or career development activities.

**Letter of Intent:** Not Required.

**Deadline:** [Standard dates](#) apply, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.

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

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**Grant Program: Growing Great Ideas: Research Education Course in Product Development and Entrepreneurship for Life Science Researchers (R25)**

**Agency: National Institutes of Health RFA-DA-17-007**

**RFP Website:** <http://grants.nih.gov/grants/guide/rfa-files/RFA-DA-17-007.html>

**Brief Description:** The prosperity of the United States has been largely based upon the ability to capitalize economically on ground-breaking discoveries from science and engineering research. Innovation is properly defined as realized (commercialized) invention. Thus, the competence to bring a scientific breakthrough to market is necessary for true biomedical innovation. Unfortunately, an overwhelming majority of the life science workforce does not receive any formal training to empower the innovation process.

The purpose of this FOA is to solicit applications to develop a highly specialized curriculum/training course in biomedical innovation and entrepreneurship that prepares NIDA research force to extend their focus beyond the laboratory and broaden the impact of basic research projects. While knowledge gained from NIH-supported basic research frequently advances the field of science, some results also show immediate potential for broader applicability and impact in the commercial and public health realms. The sought curriculum will be designed to teach interested basic scientists to recognize this potential.

The institution proposing the course must have an established and well-recognized entrepreneurship teaching program with the demonstrated ability and willingness to adapt or develop the integrated curriculum for the academic life scientists, including scientists working in the field of drug abuse and addiction research. With this research education grant, the awardee institution is expected to focus on teaching "bench" researchers, including those whose research projects are being supported by NIDA, how to gain a clearer understanding of the value of their research inventions in the marketplace, to foster the development of early-stage biomedical technologies and ultimately how to advance their technologies from the research lab into the commercial world.

The program must be specially tailored for biomedical research. The program must be focused on academic researchers who have early ideas and technologies and may be interested in the formation of a startup company around those ideas and technologies. The program must expose the trainees to the practicing biomedical entrepreneurial community (successful technology entrepreneurs, investors, venture capitalists, regulators, etc.) and to offer an opportunity for ongoing mentorship and collaborations.

Special emphasis must be placed on the challenges inherent in the early stages of the innovation process in life sciences, such as protecting intellectual property and developing regulatory and reimbursement strategies. Special topics of prominence may include:

- Recognizing whether the research idea is truly an opportunity for product development.
- Understanding the end user, the regulator, and the purchaser of the biomedical technology, and the distinctions between them. Customer Discovery. Developing regulatory and reimbursement strategies.
- Protecting intellectual property (IP) and understanding how biomedical technology can be commercialized (for example, licensing a technology through a university technology transfer office vs. setting up a startup).

- Establishing a startup business in biotechnology
- Sustaining the business and the sources of capital (SBIR/STTR, Angel Investors, Venture Capital, Corporate VC, etc.)

Research education programs may complement ongoing research training and education occurring at the applicant institution, but the proposed educational experiences must be distinct from those training and education programs currently receiving Federal support. R25 programs may augment institutional research training programs (e.g., T32, T90) but cannot be used to replace or circumvent Ruth L. Kirschstein National Research Service Award (NRSA) programs.

**Awards:** Direct costs of up to \$250,000 per year may be requested. The budget should be designed to defray participant costs in the years when the courses will be held.

**Letter of Intent:** June 20, 2016

**Deadline:** July 20, 2016, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on this date.

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

## **Grant Program: NLM Career Development Award in Biomedical Informatics and Data Science (K01)**

**Agency: National Institutes of Health PA-16-204**

**RFP Website:** <http://grants.nih.gov/grants/guide/pa-files/PAR-16-204.html>

**Brief Description:** The overall goal of the NIH Research Career Development program is to help ensure that a diverse pool of highly trained scientists is available in appropriate scientific disciplines to address the Nation's biomedical, behavioral, and clinical research needs. In addition to this opportunity, NIH Institutes and Centers (ICs) support a variety of other mentored career development programs designed to foster the transition of new investigators to research independence. These other programs may be more suitable for particular candidates. NIH also supports non-mentored career development programs for independent investigators. More information about Career programs may be found at the [NIH Extramural Training Mechanisms](#) website.

The objective of the NIH Mentored Research Scientist Development Award (K01) is to provide salary and research support for a sustained period of “protected time” (3 years) for intensive research career development under the guidance of an experienced mentor, or sponsor, in the biomedical, behavioral or clinical sciences leading to research independence. The expectation is that, through this sustained period of research career development and training, awardees will launch independent research careers and become competitive for new research project grant (e.g., R01) funding.

The National Library of Medicine (NLM) Career Development Award in Biomedical Informatics (K01) is intended to provide support for promising junior investigators as they launch their research careers in biomedical informatics research and data science. NLM supports research career development in healthcare/clinical informatics, translational bioinformatics, clinical research informatics and public health informatics. We define informatics as the intersection of computer science, information science, data science and social/behavioral sciences with one or more biomedical application domains. Application domains of interest include health care delivery and consumer health, translation of basic biological research to health outcomes, population medicine and public health, and the organization, analysis and use of biomedical big data. Regardless of the application domain, the research career focus should be informatics. The award is intended to promote the career development of informatics researchers who intend to make a long term commitment to

biomedical informatics research. K01 awardees are expected to apply for NIH or other independent research grant support (R01 or equivalent) during the final year of the award. Candidates who received their training at one of NLM's university-based biomedical informatics training programs are encouraged to apply.

**Awards:** NLM will contribute up to \$ 100,000 plus fringe benefits per year toward the salary of the career award recipient. Further guidance on budgeting for career development salaries is provided in the SF424 (R&R) Application Guide.

The total salary, however, may not exceed the legislatively mandated salary cap. See: [http://grants.nih.gov/grants/policy/salcap\\_summary.htm](http://grants.nih.gov/grants/policy/salcap_summary.htm).

NLM will contribute \$50,000 per year toward the research development costs of the award recipient, which must be justified and consistent with the stage of development of the candidate and the proportion of time to be spent in research or career development activities.

**Letter of Intent:** Not Required.

**Deadline:** [Standard dates](#) apply, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.

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

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

### **Grant Program: Biological Technologies**

**Agency: Department of Defense DARPA DARPA-BAA-16-33**

**Website:**

<https://www.fbo.gov/index?s=opportunity&mode=form&id=554fc440fe8689512243aabe0a1fb789&tab=core&cvview=0>

**Brief Description:** The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals of interest to the Biological Technologies Office (BTO). Proposed research should investigate leading edge approaches that enable revolutionary advances in science, technologies, or systems at the intersection of biology with engineering and the physical and computer sciences. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of the art. BTO seeks unconventional approaches that are outside the mainstream, challenge assumptions, and have the potential to radically change established practice, lead to extraordinary outcomes, and create entirely new fields.

**Awards:** Various

**Deadline:** April 28, 2017

**Agency contact:**

The BAA Administrator for this effort can be reached at:

E-mail: DARPA-BAA-16-33@darpa.mil

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### **Grant Program: Autism Research Program: Idea Development Award**

**Agency: Department of Defense; Defense Health Program: Congressionally Directed Medical Research Programs W81XWH-16-ARP-IDA**

**RFP Website:** [http://cdmrp.army.mil/funding/pa/16arpida\\_pa.pdf](http://cdmrp.army.mil/funding/pa/16arpida_pa.pdf)

**Brief Description:** The FY16 ARP Idea Development Award seeks applications from all areas of basic and preclinical research and *strongly encourages* applications that address the critical needs of the ASD community in one or more of the following areas:

- Assessment of novel therapeutics using valid preclinical models
- Environmental risk factors
- Mechanisms of heterogeneous clinical expression of ASD
- Mechanisms underlying conditions co-occurring with ASD (e.g., sleep disturbances, gastrointestinal issues, aggression, depression, anxiety, attention deficit)
- Factors promoting success in key transitions to independence for individuals living with ASD

**Important aspects of the FY16 ARP Idea Development Award are as follows:**

- **Impact:** The proposed research is expected to make an important and original contribution to advancing the understanding of ASD and lead ultimately to improved outcomes for individuals with ASD. The project's impact on both ASD research and patient care should be articulated, even if clinical impact is not an immediate outcome. A statistical plan is an important aspect of the FY16 Idea Development Award to demonstrate the significance of any research outcomes or findings.
- **Innovation:** Research deemed innovative may represent a new paradigm, challenge existing paradigms, look at existing problems from new perspectives, or exhibit other highly creative qualities. Research may be innovative in study concept, research methods or technology, or adaptations of existing methods or technologies. Research that represents an incremental advance on previously published work is not considered innovative.
- **Personnel:** Personnel are considered a crucial element of ARP Idea Development Award, and the Principal Investigator (PI) should demonstrate that the proposed study team has experience in ASD research. Past research experience in the ASD research field or in other developmental disorders will be evaluated in the selection process. The application should demonstrate the investigator's expertise in ASD or other developmental disorders through the PI's background, research team, or through collaboration. A biostatistician should be included in the study team. Collaborations should be demonstrated with written documentation

**Awards:** The anticipated direct costs budgeted for the entire period of performance will not exceed **\$377,000**. Indirect costs are to be budgeted in accordance with the organization's negotiated rate. No budget will be approved by the Government exceeding **\$377,000** direct costs or using an indirect rate exceeding the organization's negotiated rate .

**Deadline:** Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), June 22, 2016

- Invitation to Submit an Application: July 27, 2016
- Application Submission Deadline: 11:59 p.m. ET, September 29, 2016

**Grant Program: Broad Agency Announcement for the Office of Naval Research (ONR) Navy and Marine Corps FY2017 Basic Research Challenge (BRC) Program**

**Agency: DoD Office of Naval Research N00014-16-S-BA10**

**RFP Website:**

<https://www.fbo.gov/index?s=opportunity&mode=form&id=e7208e0d17a6a139c4105d3e43e4ca65&tab=core&cvview=0>

**Brief Description:** The Office of Naval Research (ONR) is interested in receiving proposals for basic research relating to the following topic areas:

- \_Topic 1 Establishing a Multiscale Theory for Cavitation in Complex Soft Materials
- \_Topic 2 Understanding the Phase-Resolved Bottom-Side IONosphere (BSION)
- \_Topic 3 Decentralized Perception in Data-Rich Dynamic Environments
- \_Topic 4 A Scientific Basis for Enhanced Manufacturability with Electrical Currents



- \_Topic 5 Distributed Sensing, Actuation and Control in Soft Materials for Flexible Appendages
- \_Topic 6 Predictive and Causal Modeling - Bridging the Gap
- \_Topic 7 New Opportunities to Transform Wall-bounded Turbulence Understanding

**Awards:** Various

**Deadline:** White Papers: 3 June 2016 (Friday) 11:59 Eastern Daylight Time

Full Proposals: 12 August 2016 (Friday) 11:59 Eastern Daylight Time

**Agency contact:**

Mr. David Broadwell

Grant Management Specialist

Code 255

Office of Naval Research

875 North Randolph Street

Arlington VA 22203-1995

[david.broadwell@navy.mil](mailto:david.broadwell@navy.mil)

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## **Department of Energy**

### **Grant Program: Renewable Energy To Fuels Through Utilization Of Energy-Dense Liquids (REFUEL)**

**Agency: Department of Energy Advanced Research Projects Agency Energy**

**DE-FOA-0001562**

**RFP Website:** <https://arpa-e-foa.energy.gov/#Foald1f46538f-5fae-45c0-a12d-59cbe2e6992e>

**Brief Description:** The purpose of the **Renewable Energy to Fuels through Utilization of Energy-dense Liquids (REFUEL)** program is to develop scalable technologies for conversion of electrical or thermal energy from renewable sources into chemical energy contained in energy dense Carbon-Neutral Liquid Fuels (CNLF) that can be stored, transported, and later converted into hydrogen or electricity to provide power for transportation and distributed energy generation. Because CNLFs can be stored for extended periods of time and then transported to consumers using existing and inexpensive technology for liquid fuel delivery and distribution, they offer a unique opportunity to reduce both the need for energy imports and carbon emissions from the transportation sector. In meeting that need, they also have the potential to enable increased penetration of intermittent renewable energy sources. The success of this program depends on developing technologies in two categories: (1) the synthesis of CNLFs using intermittent renewable energy sources and water and air (N<sub>2</sub> and CO<sub>2</sub>) as the only chemical input streams and (2) the conversion of CNLFs delivered to the end point to another form of energy (e.g. hydrogen or electricity)

**Awards:** Approximately \$25 million, subject to the availability of appropriated funds

**Deadline:** First Deadline for Questions to [ARPA-E-CO@hq.doe.gov](mailto:ARPA-E-CO@hq.doe.gov): 5 PM ET, May 18, 2016

Submission Deadline for Concept Papers: 5 PM ET, May 25, 2016

Second Deadline for Questions to [ARPA-E-CO@hq.doe.gov](mailto:ARPA-E-CO@hq.doe.gov): 5 PM ET, TBD

Submission Deadline for Full Applications: 5 PM ET, TBD

**Agency contact:** To apply to this FOA, Applicants must register with and submit application materials through ARPA-E eXCHANGE (<https://arpa-e-foa.energy.gov/Registration.aspx>). For detailed guidance on using ARPA-E eXCHANGE, see Section IV.H.1 of the FOA

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## NASA

### **Grant Program: ROSES 2016: Terrestrial Hydrology**

**Agency: NASA NNH16ZDA001N-THP**

**RFP Website:**

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={7EB56503-B081-FE45-4945-69070F35B951}&path=init>

**Brief Description:** This ROSES NRA (NNH16ZDA001N) solicits basic and applied research in support of NASA's Science Mission Directorate (SMD). This NRA covers all aspects of basic and applied supporting research and technology in space and Earth sciences, including, but not limited to: theory, modeling, and analysis of SMD science data; aircraft, scientific balloon, sounding rocket, International Space Station, CubeSat and suborbital reusable launch vehicle investigations; development of experiment techniques suitable for future SMD space missions; development of concepts for future SMD space missions; development of advanced technologies relevant to SMD missions; development of techniques for and the laboratory analysis of both extraterrestrial samples returned by spacecraft, as well as terrestrial samples that support or otherwise help verify observations from SMD Earth system science missions; determination of atomic and composition parameters needed to analyze space data, as well as returned samples from the Earth or space; Earth surface observations and field campaigns that support SMD science missions; development of integrated Earth system models; development of systems for applying Earth science research data to societal needs; and development of applied information systems applicable to SMD objectives and data. Awards range from under \$100K per year for focused, limited efforts (e.g., data analysis) to more than \$1M per year for extensive activities (e.g., development of specialized science experimental hardware). The funds available for awards in each program element offered in this NRA range from less than one to several million dollars, which allow selection from a few to as many as several dozen proposals, depending on the program objectives and the submission of proposals of merit. Awards will be made as grants, cooperative agreements, contracts, and inter- or intraagency transfers, depending on the nature of the work proposed, the proposing organization, and/or program requirements. The typical period of performance for an award is three years, but some programs may allow up to five years and others specify shorter periods. Organizations of every type, domestic and foreign, Government and private, for profit and not-for-profit, may submit proposals without restriction on teaming arrangements. Note that it is NASA policy that all investigations involving non-U.S. organizations will be conducted on the basis of no exchange of funds. Electronic submission of proposals is required by the respective due dates for each program element and must be submitted by an authorized official of the proposing organization. Electronic proposals may be submitted via the NASA proposal data system NSPIRES or via Grants.gov. Every organization that intends to submit a proposal in response to this ROSES NRA must be registered with NSPIRES; organizations that intend to submit proposals via Grants.gov must be registered with Grants.gov, in addition to being registered with NSPIRES. Such registration must identify the authorized organizational representative(s) who will submit the electronic proposal. All principal investigators and other participants (e.g., co-investigators) must be registered in NSPIRES regardless of submission system. Potential proposers and proposing organizations are urged to access the system(s) well in advance of the proposal due date(s) of interest to familiarize themselves with its structure and enter the requested information. Details of the solicited programs are given in the Appendices of this ROSES NRA. Names, due dates, and links for the individual calls are given in Tables 2 and 3 of this ROSES NRA. Interested proposers should monitor <http://nspires.nasaprs.com/> or subscribe to the electronic notification system there for additional new programs or amendments to this ROSES NRA through February 2017,

at which time release of a subsequent ROSES NRA is planned. A web archive (and RSS feed) for amendments, clarifications, and corrections to this ROSES NRA will be available at: <http://nasascience.nasa.gov/researchers/sara/grant-solicitations/roses-2016/> Frequently asked questions about ROSES-2016 will be on the web at <http://science.nasa.gov/researchers/sara/faqs/>. Further information about specific program elements may be obtained from the individual Program Officers listed in the Summary of Key Information for each program element in the Appendices of this ROSES NRA and at <http://science.nasa.gov/researchers/sara/program-officers-list/>. Questions concerning general ROSES NRA policies and procedures may be directed to Max Bernstein, Lead for Research, Science Mission Directorate, at [sara@nasa.gov](mailto:sara@nasa.gov)

THP uses NASA's unique view from space to study hydrologic processes associated with runoff production, hydrologic fluxes at the land-air interface, and terrestrial water stores. THP works in concert with other Earth Science Division (ESD) programs, also studying the global water cycle (e.g., precipitation, physical oceanography), to describe and understand the connections between the cycle's different parts. THP fosters the development of hydrologic remote sensing theory, the scientific basis for new hydrologic satellite missions, hydrologic remote sensing field experiments, and the interface of hydrology with other disciplines, such as those addressed by the Terrestrial Ecology program and Modeling Analysis and Prediction (see ROSES-2016 elements A.4 and A.13, respectively). Particular emphasis is placed on the application of satellite-based remotely sensed data for characterizing, understanding, and predicting the terrestrially linked components of the hydrologic cycle and the dynamics of large-scale river basins. THP is currently focused on research relating to multiple missions, either currently operating, such as Gravity Recovery and Climate Experiment (GRACE), Global Precipitation Measurement (GPM) and Soil Moisture Active Passive (SMAP); or in planning and development, such as the Gravity Recovery and Climate Experiment Follow-On (GRACE-FO) and the Surface Water Ocean Topography (SWOT). THP projects are also extensively using data collected at previous or current field campaigns and projects, such as SMAPVEX (<http://smap.jpl.nasa.gov>), AirMOSS (<http://airmoss.jpl.nasa.gov>), or numerous others, both national and international. THP furthers study of the relationship between satellite interferometric measurements of surface deformation and changes in underground water stores

**Award:** \$275K - \$550K

**Letter of Intent:** The Program is using a mandatory two-step proposal submission process. The overall description of a two-step process can be found in Section IV. (b) vii of the ROSES-2016 *Summary of Solicitation*. A Step-1 proposal is required and must be submitted electronically by the Authorized Organizational Representative (AOR). The five-page Step-1 proposal must present the proposed concept based on the Scope of Solicitation from Section 2.

After review of submitted Step-1 proposals and decisions by the selecting official, a subset of the proposers will be invited to submit Step-2 proposals. Only those who are invited to submit a Step-2 proposal will be able to do so.

**Proposal Deadline:**

THP16 NOIs Due May 13, 2016

THP16 Proposals Due Jul 15, 2016

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**National Endowment for Humanities**

**Grant Program: Research and Development Grants**

**Agency: National Endowment for Humanities**

**RFP Website:** <http://www.neh.gov/grants/preservation/research-and-development>

**Brief Description:** The Research and Development program supports projects that address major challenges in preserving or providing access to humanities collections and resources. These challenges include the need to find better ways to preserve materials of critical importance to the nation’s cultural heritage—from fragile artifacts and manuscripts to analog recordings and digital assets subject to technological obsolescence—and to develop advanced modes of organizing, searching, discovering, and using such materials.

This program recognizes that finding solutions to complex problems often requires forming interdisciplinary project teams, bringing together participants with expertise in the humanities; in preservation; and in information, computer, and natural science.

All projects must demonstrate how advances in preservation and access would benefit the cultural heritage community in supporting humanities research, teaching, or public programming. Research and Development offers two funding tiers in order to address projects at all stages of development and implementation.

**Tier I: Planning and Basic Research**

Tier I grants support the following activities:

- planning and preliminary work for large-scale research and development projects; and
- stand-alone basic research projects, such as case studies, experiments, or the development of iterative tools.

**Tier II: Advanced Implementation**

Tier II grants support projects at a more advanced stage of implementation for the following activities:

- the development of standards, practices, methodologies, or workflows for preserving and creating access to humanities collections; and
- applied research addressing preservation and access issues concerning humanities collections

**Awards:** Applicants may also request a combination of outright and federal matching funds. For example, if an applicant is requesting \$40,000 in NEH funds, and the applicant includes in its cost sharing \$5,000 from an eligible third-party donor, the applicant should request \$5,000 in federal matching funds. The balance of the NEH request (\$35,000) would then be for outright funds

**Deadline:** June 21, 2016

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