

NJIT Research Newsletter

Issue: ORN-2016-016

NJIT Research Newsletter includes **Grant Opportunity Alerts**, recent awards, and announcements of research related seminars, webinars and special events. **The Newsletter is starting a new section on national and federal research news related to research funding and grant opportunities.**

The Newsletter is posted on the NJIT Research Website <http://www.njit.edu/research/>

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(Related to research funding)

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Recent Research Grant and Contract Awards

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

PI: Iulian Neamtii (PI)

Department: Computer Science

Grant/Contract Project Title: MACRO: Models for Enabling Continuous Reconfigurability of Secure Missions

Funding Agency: US Army

Duration: 01/01/16-12/31/16

PI: Phil Goode (PI)

Department: Center for Solar Terrestrial Research

Grant/Contract Project Title: Collaborative Development of Solar Observing Technology

Funding Agency: Korea Astronomy Observatory

Duration: 09/01/14-08/31/16

PI: Antje Ihlefeld (PI)

Department: Biomedical Engineering

Grant/Contract Project Title: The role of sound deprivation on central processing of masking

Funding Agency: NIH

Duration: 02/01/16-08/31/17

PI: Catalin Turc (PI)
Department: Mathematical Sciences
Grant/Contract Project Title: Innovative Physics-based Modeling Tool for Application to Passive Radio Frequency Identification System on Rotorcraft
Funding Agency: US Department of Navy
Duration: 05/30/15-09/29/16

PI: Michel Boufadel (PI)
Department: Center for Natural Resource Development and Protection
Grant/Contract Project Title: Benchscale Treatability Study
Funding Agency: Langan Engineering
Duration: 12/17/14-06/15/17

PI: Louis Lanzerotti (PI)
Department: Center for Solar Terrestrial Research
Grant/Contract Project Title: Radiation Belt Storm Probes Science Investigations (RBSPICE) Phases B, C, D, and E
Funding Agency: NASA
Duration: 01/01/09-05/31/16

PI: Gareth Russell (PI)
Department: Biology
Grant/Contract Project Title: Estimating Abundance of Animal Populations
Funding Agency: USDOJ
Duration: 09/01/15-09/01/17

In the News...

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

Senate Appropriations Committee: The FY17 spending bill includes \$19.3 billion for NASA (\$21 million above the FY16 spending level), \$7.51 billion for NSF (\$46 million above the FY16 spending level), and \$974 million to NIST (\$10 million increase over FY16). The research, development, test, and evaluation numbers show trims for the Army and Navy but increases for the Air Force and Defense-wide R&D: Army, \$7.51 billion (current year \$7.56 billion); Navy, \$17.27 billion (current year \$18.11 billion); Air Force, \$28.11 billion (current year \$25.21 billion); Defense-wide \$18.3 billion (current year \$18.69 billion). In other action, the Senate passed the [Energy Policy Modernization Act](#), which addresses a wide range of policy issues such as energy supply and energy efficiency. Although not binding, the bill also provides a multi-year authorization for programs within the Department of Energy. The DOE Office of Science would increase by 5% per year through the year 2020, substantially greater than currently envisioned in the Energy and Water Appropriations Bills now being considered in the House and Senate. The Energy Policy Modernization Act builds on recent technological breakthroughs and promises to bring substantial benefits to American families and businesses while protecting the environment.

NASA's Aeronautics Research Mission Directorate is soliciting proposals for the University Leadership Initiative, which seeks to address future aviation problems, and build multi-disciplinary research capacity within the university community. These university-led partnerships will provide strategic leadership that advances selected research objectives and promotes education of the next generation of engineers. Solicitation NNH16ZEA001N-ULI specifies topics that include: safe, efficient growth in global operations; innovation in commercial supersonic aircraft; ultra-efficient commercial vehicles; transition to low-carbon propulsion; real-time system-wide safety assurance; and, assured autonomy for aviation transformation.

The Office of Naval Research (ONR) Basic Research Challenge (BRC) program was established to address promising research programs in new areas not addressed by the current ONR basic research program. Topics are selected that foster leading-edge science and attract new principal investigators and organizations. ONR has issued an announcement for its [Basic Research Challenge](#) for FY17. Among the seven topics specific to this solicitation are: cavitation in soft materials; improvements in space weather modeling; understanding data-rich environments; and, turbulence modeling. White Papers are due June 3, with full proposals due by August 12. BRC awards are normally for four years.

Solar Weather: Solar flares, solar energetic particles, and coronal mass ejections have been shown to have a great potential to impact critical civilian and defense satellites, power grids, aircraft safety, and other systems. Responsibility for research, assessment, and operational forecasting has been spread among thirteen federal agencies. Clearly aligning agency roles and budgetary resources has been difficult. The solar and space physics decadal survey, A Science for a Technological Society, identified multiple gaps in the multi-agency effort and recommended rechartering a National Space Weather Program. In response, the White House Office of Science and Technology Policy has developed a National Space Weather Strategy and National Space Weather Action Plan. In an effort to codify these roles and ensure the strategy can transition to a new Administration, Senators Gary Peters (D-Mich.), Cory Gardner (R-Colo.) and Cory Booker (D-N.J.) have introduced a counterpart bill entitled The Space Weather Research and Forecasting Act (S. 2817). The bill pays particular attention to planning for replacement satellites for NASA research missions that have also provided data essential for operational forecasting. For example, the Solar and Heliospheric Observatory, launched in 1995, has provided a major source of data for forecasting models, but is now well beyond its design life. The budget to achieve full continuity in space weather operational satellites was estimated by the decadal survey to be as much as \$200 million annually. More on <http://spacenews.com/space-weather-bill-introduced-in-u-s-senate/>.

Professional Development For Graduate Students: The National Science Foundation has funding available in FY 2016 and FY 2017 to support science and engineering doctoral students so that they can acquire the knowledge, experience, and skills needed for highly productive careers, inside and outside of academe." Opportunities across NSF "explore approaches that will position NSF-funded graduate students for success in the 21st century Science, Technology, Engineering, and Mathematics (STEM) workforce." More on http://www.nsf.gov/pubs/2016/nsf16067/nsf16067.jsp?WT.mc_id=USNSF_25&WT.mc_ev=click

Events and Announcements

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>.

Event: Webinar: SL+ Webinar (with audio) + 2 Live Teleconferences

When: April 27, 2016 11.00 AM-12.00 PM; April 28, 2016 11.00 AM-12.00 PM

Where: http://www.nsf.gov/events/event_summ.jsp?cntn_id=138425&org=NSF

Brief Description: There is a PowerPoint presentation with audio about the program. It is recommended to review the PPT presentation before the teleconference. Information about this RFP solicitation NSF 16-548 is copied below earlier included in the Newsletter issue #9.

Contacts: Ellen McCallie, 703-292-5115, emccalli@nsf.gov; Preferred Contact Method: Email

Event: IEEE Smart Grid Webinar

When: April 28, 2016 1.00 PM-2.00 PM

Where: <http://smartgrid.ieee.org/grid-modernization-and-der-deployment-lessons-learned-and-future-directions>

Brief Description: Regulatory initiatives to decarbonize our ecosystem have led to the growth of Distributed Energy Resources (DER), which include Solar-PV, Energy Storage, Demand Response and Electric Vehicles. DER growth has also been led by new innovative technologies. Moreover, recent grid restoration experiences from major storms have shown the potential of DER to provide emergency electricity service. DER is also revolutionizing how consumers value electricity service and reliability. DER provides new opportunities to optimize real-time transmission and distribution grid operations. This webinar will present the challenges and opportunities of DER for real-time grid operations, and will share lessons learned from recent

Advanced Distribution Management Solutions (ADMS) and Distributed Energy Resource Management Solutions (DERMS) deployment projects in integrating, scheduling and dispatching of DER.

About the Speakers: Dr. Avnaesh Jayantilal is Director of Advanced Distribution Management Systems (ADMS) in **GE Grid Software Solutions** business assisting electric utilities in enhancing grid operations and reliability, business process optimization and ultimately customer satisfaction. Avnaesh joined GE (then Alstom) in 1999, and prior to his current role, he held positions in Product Marketing, Business Development, Project Engineering and Software Development. Dr. Jayantilal supports and participates in the deployment of Community Microgrids for rural electrification in the developing world with IEEE Smart Village. He is a Senior Member of the IEEE Power and Energy Society (PES), in which he chairs the IEEE PES System Operations and Control Centre Subcommittee.

Register at: <http://smartgrid.ieee.org/grid-modernization-and-der-deployment-lessons-learned-and-future-directions>

Grant Opportunity Alerts

Keywords and Areas Included in Grant Opportunity Alerts:

NSF: Electronics, Photonics and Magnetic Devices (EPMD); Energy, Power, Control, and Networks (EPCN); Mathematical Sciences Postdoctoral Research Fellowships (MSPRF); Science Learning+ Partnership Grants

NIH: 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); Improved Technologies and Ligands for Non-invasive Brain Imaging (R41/R42)

Department of Defense/US Army/DARPA/ONR: Basic Research Challenge (BRC) Program

NASA: ROSES 2016: Terrestrial Hydrology

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

Grant Opportunities

National Science Foundation

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

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:

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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

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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Grant Program: Mathematical Sciences Postdoctoral Research Fellowships (MSPRF)

Agency: National Science Foundation NSF 16-558

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16558/nsf16558.htm>

Brief Description: The purpose of the Mathematical Sciences Postdoctoral Research Fellowships (MSPRF) is to provide flexibility for a Fellow to pursue a research program in the mathematical sciences in a postdoctoral research environment that will have maximal impact on the Fellow's scientific development. The Fellow will affiliate with a host institution during the entire tenure of the fellowship and select a sponsoring scientist who will provide mentoring and guidance for both the research and training proposed by the applicant. The applicant is responsible for making prior arrangements with the sponsoring scientist.

The Fellow will have two options for holding the fellowship:

- The Research Fellowship option provides full-time support for any eighteen academic-year months in a three-year period, in intervals not shorter than three consecutive months;/li>
- The Research Instructorship option provides a combination of full-time and half-time support over a period of three academic years, usually one academic year full-time followed by two academic years half-time. This option allows the Fellow the opportunity to gain teaching experience during the two half-time academic years. The full-time fellowship support will be provided during the first year except in extremely unusual circumstances, with any exception subject to approval by the managing program director.

Under both options the award includes six summer months of support.

The MSPRF program is designed to foster close collaboration between the Fellow and the sponsoring scientist, to promote the Fellow's professional development. For this reason, long-term absences of the Fellow from the host institution, unless accompanied by the sponsoring scientist, are not generally compatible with the intent of the MSPRF program, and any such absence longer than one month in duration must be approved in advance by the cognizant program director. If the Fellow plans an absence from the host institution of duration longer than one month during the first year of the Fellowship, the MSPRF proposal must fully describe in a supplementary document the rationale and plans for such an absence. Plans for long-term absences (which are expected to be uncommon) are subject to review together with the rest of the proposal. Program directors will not approve long-term absences of the Fellow from the host institution, unaccompanied by the sponsoring scientist, during the first year of a Fellowship unless plans for the long-term absence are spelled out in the proposal.

Awards: Anticipated Funding Amount: \$5,000,000 subject to availability of funds.

Letter of Intent: Not Required.

Full Proposal Deadlines: October 19, 2016

Contacts:

- Bruce P. Palka, 1025 N, telephone: (703) 292-4856, email: bpalka@nsf.gov
- J. Matthew Douglass, 1025 N, telephone: (703) 292-2467, email: mdouglas@nsf.gov
- Swatee Naik, 1025 N, telephone: (703) 292-4876, email: snaik@nsf.gov

Grant Program: Science Learning+ Partnership Grants

Agency: National Science Foundation NSF 16-548

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16548/nsf16548.htm>

Brief Description: Within the National Science Foundation (NSF) context, **Science Learning+** is a strand within project type 3, Research in Service to Practice, of the **Advancing Informal STEM Learning (AISL)** program ([NSF 15-593](#)).

Science Learning+ is an open call for proposals for Partnership Grants through an international partnership between the NSF and the Wellcome Trust with the UK Economic and Social Research Council (ESRC).

The aims of Science Learning+ are to strengthen the research and knowledge base; bridge the practice and research gap; and/or share knowledge and experience in informal science, technology, engineering and mathematics (STEM) experiences. Furthermore, the initiative seeks to support practice-based research which falls within or across the following priority areas: understanding learning; engagement in STEM; skills development; equity; diversity; access to informal learning settings; and measurement of outcomes.

Proposals must address at least one priority area and include: collaborations between at least one organization in the US and one in the UK/Republic of Ireland. In addition, the proposal

should include a substantive research program, not solely a public engagement activity; genuine partnerships between researchers and practitioners of STEM engagement; experts from more than one STEM area; and more than one informal STEM learning location, platform, or environment. Proposers should submit a single, comprehensive proposal with two budget components, one for US activities and one for UK/Republic of Ireland activities, to NSF.

Awards: Total anticipated funding: \$12 million/£7.5 million; that amount includes approximately \$6,000,000 from NSF, dependent upon availability of appropriations, for new standard or continuing awards and up to £3,750,000 from the Wellcome Trust and ESRC.

Letter of Intent: Not Required

Full Proposal Submission Due Date: June 14, 2016

Contacts:

- Catherine Eberbach, telephone: (703) 292-4960, email: ceberbac@nsf.gov
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 - Ann Jeffcott, ESRC, telephone: +44 (0)17 9341 3023, email: ann.jeffcott@esrc.ac.uk
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National Institutes of Health

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 NIH Research Education Program (R25) supports research education activities in the mission areas of the NIH. The over-arching goal of this NIDA R25 program is to support educational activities that enhance the training of a workforce to meet the nations biomedical, behavioral and clinical research needs. To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on Courses for Skills Development.

Awards: Standard Grants.

Letter of Intent: Not Required.

Deadline: July 20, 2016.

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 purpose of the NLM Career Development Award (K01) in Biomedical Informatics and Data Science is to provide support and "protected time" (up to three years) for an intensive career development experience in biomedical informatics and data science leading to research independence. NLM invites K01 applications from junior investigators, who have either a health professional or research doctorate and who are in the first three years of their initial faculty positions. Candidates who received their training at one of NLM's university-based biomedical informatics training programs are encouraged to apply.

Awards: Standard Grants.

Letter of Intent: Not Required.

Deadline: May 07, 2016

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: Improved Technologies and Ligands for Non-invasive Brain Imaging (R41/R42)

Agency: National Institutes of Health RFA-DA-17-010

RFP Website: <http://grants.nih.gov/grants/guide/rfa-files/RFA-DA-17-010.html>

Brief Description: The proposed STTR concept will support small business efforts that address challenges in the realm of brain imaging including: 1. the further development and commercialization of in vivo imaging technologies, 2. the development of ligands or imaging technologies to enable visualization of latent or replicating HIV viruses within the brain, 3. the development of imaging ligands for visualizing changes in receptors or other brain proteins relevant to substance abuse and co-occurring psychiatric disorders (e.g., anxiety, depression), 4. the development of imaging ligands for visualizing neuronal and/or glial retrograde/signaling molecules (e.g., glutamine, anandamide).

Small businesses interested in the development of relevant innovative technologies are encouraged to apply via the [SBIR mechanism](#) (R43/R44) with this initiative. Applicants are encouraged to contact NIH Scientific/Research staff for more detailed guidance.

Specific Areas of Research Interest

This initiative will support small business development of research-enabling tools, technologies, or products such as (but not limited to):

- The development of new or improved ligands for imaging brain structure and function, including for neuronal or glial retrograde/signaling molecules, neurotransmitters and associated receptors, metabolites, proteins, and/or other molecules
- The development of ligands for visualizing replicating or latent HIV in the brain
- The development of ligands targeting specific glial cells (e.g., oligodendrocytes, astrocytes, microglia) or markers for state of activation (e.g., resting vs. activated microglia)
- The development and optimization of ligands for the detection of epigenomic or epitranscriptomic readers, writers, and erasers that function in the brain and/or in HIV regulation
- The development of new or improved MRI protocols for chemical imaging (e.g., MRS)
- The development of new or improved software (e.g., MR sequence), devices, or analytical tools for imaging brain structure and function or for identification of latent or replicating viruses in the brain

The development of improved software or devices for non-invasive imaging in the service of diagnosis and monitoring treatment of SUDs, pain, or HIV/AIDS.

Awards: According to statutory guidelines, total funding support (direct costs, indirect costs, fee) normally may not exceed \$150,000 for Phase I awards and \$1,000,000 for Phase II awards. With appropriate justification from the applicant, Congress will allow awards to exceed these amounts by up to 50% (\$225,000 for Phase I and \$1,500,000 for Phase II).

Letter of Intent: 30 days prior to the application due date.

Deadline: August 17, 2016, by 5:00 PM local time of applicant organization.

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

Department of Defense/US Army/DARPA/ONR

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:

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Grant Management Specialist

Code 255

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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

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

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
