

# NJIT Research Newsletter

Issue: ORN-2016-020

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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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(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:** Wen Zhang (PI)

**Department:** Civil and Environmental Engineering

**Grant/Contract Project Title:** Subschema: Collaborative Research: Development of Multifunctional Reactive Electrochemical Membranes for Biomass Recovery with Fouling Reduction, Water Reuse, and Cell Pretreatment

**Funding Agency:** NSF

**Duration:** 09/01/16-08/31/19

**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:** 01/15/09-06/30/16

**PI:** Iulian Neamtii (PI)

**Department:** Computer Science

**Grant/Contract Project Title:** CAREER: Differential Types and Declarative Hypothesis Testing for Software Evolution

**Funding Agency:** NSF

**Duration:** 09/01/15-03/31/17

**PI:** Somenath Mitra (PI)

**Department:** Chemistry and Environmental Sciences

**Grant/Contract Project Title:** Bioactivity and Mechanistic Studies Using a Comprehensive and Well Characterized Nanotube Library

**Funding Agency:** NIH

**Duration:** 07/01/14-04/30/17

**PI:** Bipin Rajendran (PI) and Durgamadhab (Co-PI)

**Department:** Electrical and Computer Engineering

**Grant/Contract Project Title:** CampuSense (Correction)

**Funding Agency:** Indian Institute of Technology

**Duration:** 10/01/15-05/30/16

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### In the News...

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

**Department of Labor: Fair Labor Standards Act:** On May 17, the Administration released a [final rule](#) updating the salary level salary threshold under which most salaried workers are entitled to overtime compensation. The salary threshold would increase from \$23,660 to \$47,476. For institutions of higher education, the rule would affect many classes of employees, such as post docs, who have not been eligible for overtime pay in the past.

Funding agencies will be obligated to increase allowable stipends. During rulemaking, comments from the higher education community have expressed concerns about the capacity of research intuitions to absorb these costs and the possibility that these will cut into overall research grant funding and increase tuition costs. The final rule will become effective December 1. Read More: [Inside Higher Ed](#), [American Council on Education](#)

**Senators Demand More DoD Basic Research:** Defense appropriators call for \$2.26 billion for basic research, \$163 million more than the Pentagon had sought. Overall, they would provide \$70.8 billion for research, development, test, and evaluation. "Basic research is the foundation of innovative breakthroughs that are critical to maintaining the Nation's future technological edge. Investments in basic research not only provide advances in technology for our military men and women but also provide an important incubator for national labs and academic research institutions," the senators said in [their report](#). Within the increase is more money than requested for Historically Black Colleges and Universities and \$10 million for an unspecified "manufacturing initiative" in the National Defense Education Program.

**NSF:** Proposals are now being solicited for the [Campus Cyberinfrastructure](#) (CC) program (a modified version of the former *Campus Cyberinfrastructure - Data, Networking, and Innovation Program*). The CC program provides an opportunity for universities, non-profit entities, independent museums, observatories, research labs, and professional societies to improve cyberinfrastructure capabilities for data, networking, and computing infrastructure.

Proposals emphasizing science-driven requirements may address seven specific award categories ranging from *multi-institution model implementation* at \$3 million over four years, to *integrated storage* awards at \$200 K over four years. All of these should involve partnerships

among institution-level cyberinfrastructure experts. Please see information about RFP NSF-16-567 in Grant Opportunity Alert section in this issue.

**NASA:** The *Plasma Krystall-4* (PK-4) experimental facility, installed on the International Space Station in 2015, allows the study of complex plasmas--low temperature gaseous mixtures composed of ionized gas, neutral gas, and micron-sized particles. Understanding how such unique plasmas behave is important in astrophysics, materials science, thermodynamics, and in understanding transport properties. Research on complex fluids and "soft matter" has become a prime objective in exploiting the microgravity environment on the Space Station.

NASA and NSF have released a solicitation entitled [NASA/NSF Partnership on Science of Dusty Plasmas Utilizing the PK-4 Facility on board the International Space Station](#). The solicitation requests proposals for flight experiments and related ground research that may also lead to new microgravity science and instrumentation beyond PK-4. Preference will be given to flight experiments. In other NASA news, comments are now being solicited for the establishment of [Space Technology Research Institutes](#). These are envisioned to be university-led, multidisciplinary distributed institutes that focus a wide range of expertise on areas of strong interest to NASA. Comments on the [draft solicitation](#) are due June 10, with a solicitation release date anticipated to be July 1. Full proposals, by invitation, will be due on October 24.

Read More: NRC Report [Recapturing a Future for Space Exploration](#).

**DOE:** The [International Thermonuclear Experimental Reactor](#) (ITER) is world's most significant investment in seeking to demonstrate sustained plasma burning and ultimately fusion energy. The US has been a member since its establishment in 2007. The estimated costs to the US have increased fivefold since 2003 rising from \$1.1 billion to as much as \$6.5 billion, while the schedule for "first plasma" has slipped from 2020 to no sooner than 2025. A major management change was made in March 2015. This significant cost and schedule overrun has resulted in a recommendation contained in Senate Appropriations Energy and Water Bill to terminate US participation. Now, at the direction of the FY16 Omnibus Appropriations bill, Secretary of Energy Ernest Moniz has submitted a [report on US participation](#). The report recommends limited continued participation in the project through FY18 at which time the US role would be reassessed as part of the FY19 budget preparation. Without additional funds for the DOE Office of Science, other priorities, including US domestic fusion research, would be significantly impacted. Secretary Moniz has indicated he will ask the National Academy of Sciences to conduct a review of the overall fusion energy research program in the US.

Read More: [Science Insider](#).

**Senate R&D Priorities:** Appropriators would like the Army to expand its Open Campus approach to include the Materials and Manufacturing Science laboratories. They encourage "advances in manufacturing using nanoscale and microscale technologies [that] have the potential to increase the performance of essential . . . armament and munitions applications." They urge the Navy to address "materials homogeneity and integration related to electronic and photonic technologies"; expand ocean renewable energy testing, look at energy costs and security at coastal facilities, and "invest in renewable energy demonstration activities." The Air Force, as well, should "continue critical research in this field, including investments in adaptive engine technologies, biogasification and waste-to-energy, and other promising initiatives."

**DARPA: Cyber and UAV Weapons:** The Senate appropriations panel backs "multidisciplinary research in the areas of dynamic cyber defense, tactical cyberspace operations, signals

intelligence, and user-in-the-loop testing and evaluation." DARPA, the panel says, should "work with the research labs to implement a university-based cybersecurity laboratory and photonics foundry with close involvement with industry partners, State government and the Federal Government to continue development of quantum computing capability." To counter rogue drones, the committee urges the Air Force Research Laboratory to continue research and development of tactics using radar systems, advanced communications, and cyber security technologies."

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### **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>.

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

**When: June 1, 2016 2.00 PM – 3.30 PM**

**Where:** [http://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=138383&org=NSF](http://www.nsf.gov/events/event_summ.jsp?cntn_id=138383&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 Ben Schrag will walk you through the process and answer questions. **Advance registration is required; to register visit:** <http://bit.ly/1NkFG8r>. 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: Enhancing High-Voltage Transmission Line Performance with Numerical Simulation**

**When: June 9, 2016 2.00 PM-3.00 PM**

**Where:** <http://spectrum.ieee.org/webinar/enhancing-highvoltage-transmission-line-performance-with-numerical-simulation>

**Brief Description:** Designing high-voltage transmission lines requires proper grading of electric fields for reliability and environmental performance. Simulation specialists at POWER Engineers, Inc. use mathematical modeling in COMSOL Multiphysics® software to analyze electric field effects, optimize hardware designs, and minimize the environmental impacts of the energized equipment. This webinar will present methods for using finite element analysis to optimize transmission line hardware. The presentation will include a live demo in the software and a Q&A session.

**Biographical Sketch of the Speaker: Jon Leman, Senior Project Engineer, Power Delivery SAS, POWER Engineers.** Jon Leman has been with POWER Engineers since 2005. He is a member of POWER's SCADA and Analytical Services group, where he is primarily involved in electrical analysis of high-voltage AC and DC power delivery systems. Jon's technical interests are in finite element analysis, power system electromagnetics, transient simulation, and HVDC systems. Prior to working for POWER Engineers, he served in the U.S. Navy as an instructor of electrical engineering. Jon holds an M.S. in electrical engineering from the University of Idaho, where he researched real-time simulation of DC voltage source converter technology. In his spare time Jon enjoys backpacking, fishing, and ham radio.

**Jennifer Segui, Sr. Technical Marketing Engineer, COMSOL.** As a Sr. Technical Marketing Engineer at COMSOL, Jennifer Segui writes and produces demos, presentations, articles, and documentation showcasing the capabilities available across the entire COMSOL® Product Suite. She is also the Program co-Chair for the COMSOL Conference in Boston. Jennifer has degrees in Medical Physics and Computer Engineering

**To Join the Webinar:** Please register at: <http://spectrum.ieee.org/webinar/enhancing-highvoltage-transmission-line-performance-with-numerical-simulation>

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**Event: AAAS Webinar: Key signaling pathways in cancer: Links to developmental biology**

**When: June 2, 2016 1.00 PM-2.00 PM**

**Where:**

<http://view6.workcast.net/register?pak=2159552366007894&referrer=Blast3&et rid=79460182&et cid=501725>

**Brief Description:** It is notable that the same pathways governing the cell growth, death, and differentiation decisions made during embryonic development are also common drivers of adult malignancy. In this webinar, we will explore the idea that a better understanding of developmental biology signaling pathways will advance our understanding of adult tumors and

cancer stem cells as well as boost our ability to create effective therapeutics to fight a broad array of cancers. During the webinar, our speakers will:

- Discuss the mechanisms and control of antiproliferation signaling from cytokines such as transforming growth factor beta (TGF- $\beta$ ) and their role in cancer progression
- Explain the role of the Hedgehog signaling pathway in embryonic development and how it is deregulated in certain skin cancers and in pancreatic cancer
- Elucidate how the microenvironment impacts the behavior of tissue stem cells and how this crosstalk goes awry in cancer
- Answer your questions live during the broadcast!
- Have their questions answered live by the panelists!

**Participants:**

**Elaine Fuchs, Ph.D.**

HHMI/Rockefeller University  
New York, NY

**Benjamin L. Allen, Ph.D.**

University of Michigan  
Ann Arbor, MI

**Rik Derynck, Ph.D.**

University of California San Francisco  
San Francisco, CA

**Register at:**

[webinar.sciencemag.org](http://webinar.sciencemag.org)

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**Grant Opportunity Alerts**

Keywords and Areas Included in Grant Opportunity Alerts:

**NSF:** Campus Cyberinfrastructure (CC\*); Division of Physics: Investigator-Initiated Research Projects (PHY); Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII)

**NIH:** BD2K Open Educational Resources for Skills Development in Biomedical Big Data Science (R25); Development and Application of PET and SPECT Imaging Ligands as Biomarkers for Drug Discovery and for Pathophysiological Studies of CNS Disorders (R01); Methodology and Measurement in the Behavioral and Social Sciences (R21) and (R01)

**Department of Defense/US Army/DARPA/ONR:** C4ISR, Information Operations and Information Technology System Research; Duchenne Muscular Dystrophy Investigator-Initiated Research Award; Spinal Cord Injury Research Program Investigator-Initiated Research Award; Spinal Cord Injury Research Program Translational Research Award; Peer Reviewed Medical Research Program

**Department of Energy:** Solar Energy Evolution and Diffusion Studies II – State Energy Strategies (SEEDSII-SES); Renewable Energy To Fuels Through Utilization Of Energy-Dense Liquids (REFUEL)

**NASA: ROSES 2016:** Space Geodesy Research Program; ROSES 2016: Modeling, Analysis, and Prediction;

**National Endowment for Humanities:** Fellowship Programs at Independent Research Institutions

## Grant Opportunities

### National Science Foundation

#### **Grant Program: Campus Cyberinfrastructure (CC\*)**

**Agency: National Science Foundation NSF 16-567**

**RFP Website:** <http://www.nsf.gov/pubs/2016/nsf16567/nsf16567.htm>

**Brief Description:** The Campus Cyberinfrastructure (CC\*) program invests in coordinated campus-level cyberinfrastructure (CI) components of data, networking, and computing infrastructure, capabilities, and integrated services leading to higher levels of performance, reliability and predictability for science applications and distributed research projects. Learning and workforce development (LWD) in CI is explicitly addressed in the program. Science-driven requirements are the primary motivation for any proposed activity.

CC\* awards will be supported in seven areas:

- Data Driven Multi-Campus/Multi-Institution Model Implementations awards will be supported at up to \$3,000,000 total for up to 4 years.
- Cyber Team awards will be supported at up to \$1,500,000 total for up to 3 years.
- Data Driven Networking Infrastructure for the Campus and Researcher awards will be supported at up to \$500,000 total for up to 2 years.
- Network Design and Implementation for Small Institutions awards will be supported at up to \$400,000 total for up to 2 years.
- (Network Integration and Applied Innovation awards will be supported at up to \$1,000,000 total for up to 2 years.
- Campus Computing awards will be supported at up to \$500,000 for up to 3 years.

Innovative Integrated Storage Resources awards will be supported at up to \$200,000 for up to 2 years.

**Awards:** Standard grants. **Anticipated Funding Amount:** \$18,000,000

**Letter of Intent:** Not Required.

**Full Proposal Submission Due Date:** August 23, 2016

#### **Contacts:**

- Kevin Thompson, ACI Program Director, telephone: (703) 292-4220, email: [CCDNIQueries@nsf.gov](mailto:CCDNIQueries@nsf.gov)
- Amy Walton, ACI Program Director, telephone: (703) 292-4538, email: [CCDNIQueries@nsf.gov](mailto:CCDNIQueries@nsf.gov)
- Jack Brassil, CNS Program Director, telephone: (703) 292-8950, email: [CCDNIQueries@nsf.gov](mailto:CCDNIQueries@nsf.gov)
- Edward Walker, ACI Program Director, telephone: (703) 292-4863, email: [CCDNIQueries@nsf.gov](mailto:CCDNIQueries@nsf.gov)
- Sushil K. Prasad, ACI Program Director, telephone: (703) 292-5059, email: [CCDNIQueries@nsf.gov](mailto:CCDNIQueries@nsf.gov)

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#### **Grant Program: Division of Physics: Investigator-Initiated Research Projects (PHY)**

**Agency: National Science Foundation NSF 16-566**

**RFP Website:** <http://www.nsf.gov/pubs/2016/nsf16566/nsf16566.htm>

**Brief Description:** The Division of Physics (PHY) supports physics research and education in the nation's colleges and universities across a broad range of physics disciplines that span scales of space and time from the largest to the smallest and the oldest to the youngest. The Division is

comprised of disciplinary programs covering experimental and theoretical research in the following major subfields of physics: Accelerator Science; Atomic, Molecular and Optical Physics; Computational Physics; Elementary Particle Physics; Gravitational Physics; Integrative Activities in Physics; Nuclear Physics; Particle Astrophysics; Physics of Living Systems; Plasma Physics (supported under a separate solicitation); and Quantum Information Science.

**Awards:** Standard grants. **Anticipated Funding Amount:** \$90,000,000 - Pending availability of funds, approximately \$90M will be committed for the total budget of all new awards in each cycle

**Letter of Intent:** Not Required.

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

**Contacts:**

- Vyacheslav (Slava) Lukin, Accelerator Science; Plasma Physics, telephone: (703) 292-7382, email: [vlukin@nsf.gov](mailto:vlukin@nsf.gov)
- Alex Cronin, Atomic, Molecular and Optical Physics - Experiment, telephone: (703) 292-5302, email: [acronin@nsf.gov](mailto:acronin@nsf.gov)
- John Gillaspay, Atomic, Molecular and Optical Physics - Experiment, telephone: (703) 292-7173, email: [jgillasp@nsf.gov](mailto:jgillasp@nsf.gov)
- Michael J. Cavagnero, Atomic, Molecular and Optical Physics - Theory, telephone: (703) 292-2163, email: [mcavagne@nsf.gov](mailto:mcavagne@nsf.gov)

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### **Grant Program: Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII)**

**Agency:** National Science Foundation NSF 16-565

**RFP Website:** <http://www.nsf.gov/pubs/2016/nsf16565/nsf16565.htm>

**Brief Description:** With the goal of encouraging research independence immediately upon obtaining one's first academic position after receipt of the PhD, the Directorate for Computer and Information Science and Engineering (CISE) will award grants to initiate the course of one's independent research. Understanding the critical role of establishing that independence early in one's career, it is expected that funds will be used to support untenured faculty or research scientists (or equivalent) in their first three years in a primary academic position after the PhD, but not more than a total of five years after completion of their PhD. One may not yet have received any other grants or contracts in the Principal Investigator (PI) role from any department, agency, or institution of the federal government, including from the CAREER program or any other program, post-PhD, regardless of the size of the grant or contract, with certain exceptions noted below. Serving as co-PI, Senior Personnel, Postdoctoral Fellow, or other Fellow does not count against this eligibility rule. Grants, contracts, or gifts from private companies or foundations; state, local, or tribal governments; or universities do not count against this eligibility rule.

It is expected that these funds will allow the new CISE Research Initiation Initiative PI to support one or more graduate students for up to two years. Faculty at undergraduate and two-year institutions may use funds to support undergraduate students, and may use the additional RUI designation (which requires inclusion of a RUI Impact Statement) -- see [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5518](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5518) for additional information. In addition, submissions from all institutions may use funds for postdoctoral scholars, travel, and/or research equipment.

**Awards:** Standard Grants. Anticipated Funding Amount: \$10,000,000

**Letter of Intent:** Not Required.

**Full Proposal Submission Due Date:** August 10, 2016



**Contacts:**

- Almadena Y. Chtchelkanova, Program Director, CCF, 1115, telephone: (703) 292-8910, email: [achtchel@nsf.gov](mailto:achtchel@nsf.gov)
  - Ephraim P. Glinert, Program Director, IIS, 1125, telephone: (703) 292-8930, email: [eglinert@nsf.gov](mailto:eglinert@nsf.gov)
  - Mimi McClure, Associate Program Director, CNS, 1175, telephone: (703) 292-8950, email: [mmcclure@nsf.gov](mailto:mmcclure@nsf.gov)
  - Sushil Prasad, Program Director, ACI, 1145, telephone: (703) 292-8970, email: [sprasad@nsf.gov](mailto:sprasad@nsf.gov)
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**National Institutes of Health****Grant Program: BD2K Open Educational Resources for Skills Development in Biomedical Big Data Science (R25)****Agency: National Institutes of Health RFA-HG-16-016****RFP Website:** <http://grants.nih.gov/grants/guide/rfa-files/RFA-HG-16-016.html>

**Brief Description:** The NIH Research Education Program (R25) supports research educational activities that complement other formal training programs in the mission areas of the NIH Institutes and Centers. The over-arching goals of the NIH R25 program are to: (1) complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs; (2) enhance the diversity of the biomedical, behavioral and clinical research workforce; (3) help recruit individuals with specific specialty or disciplinary backgrounds to research careers in biomedical, behavioral and clinical sciences; and (4) foster a better understanding of biomedical, behavioral and clinical research and its implications.

The over-arching goal of this BD2K R25 program is to support educational activities that complement and/or enhance the training of a workforce to meet the nation's 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*** for biomedical researchers who need the requisite knowledge and skills to extract knowledge from biomedical Big Data. To extend the reach of the course, each educational activity is required to develop open educational resources (OERs) that adhere to FAIR (findable, accessible, interoperable, and reusable) principles.

**Training for the BD2K Initiative**

Extracting useful knowledge from biomedical Big Data is a major limiting factor to understanding health and disease. The focus of the Big Data to Knowledge (BD2K) Initiative is to support the research and development of innovative and transformative approaches and tools with the goal of maximizing and accelerating the utility of Big Data and data science in biomedical research. For the purposes of this FOA, biomedical is broadly defined to include biomedical, behavioral, or social science research focused on health. To address the growing need for skilled researchers to fully utilize the vast amount of heterogeneous biomedical Big Data there must be an increase in the number of individuals: (1) trained in developing tools, methods, and analyses to make Big Data useful, and (2) knowledgeable about how to use the tools, methods, and analyses. Thus, the primary goals of training and education efforts for the BD2K Initiative are 1) to increase the number of expert biomedical data scientists, and 2) to elevate general data science competencies of all biomedical scientists.

Data Science training and education needs in the biomedical workforce vary greatly based on an individual's prior knowledge and their intended use of data. Thus, BD2K programs to support training, education, and career development reflect a variety of needs within the workforce:

- For biomedical scientists to become conversant in data science and learn to utilize existing tools, courses and open educational resources are available.
- To address the growing need for specialists in biomedical data science, predoctoral students and early career scientists are supported.
- To foster the development of new interdisciplinary teams consisting of biomedical scientists and data scientists, BD2K is collaborating with the National Science Foundation.
- To train a diverse workforce, under-resourced institutions serving diverse populations are developing data science curriculum and providing short-term research experiences for students and faculty.

To ensure that BD2K's training and education efforts have maximum impact in generating knowledge, educational resources should be findable, accessible, interoperable, and reusable (FAIR). The [FAIR principles](#) are applied in the development of an Educational Resource Discovery Index that will help biomedical scientists find and access the most appropriate data science educational resources to meet their training and educational needs. The [BD2K Training Coordination Center](#) (TCC) is developing this Educational Resource Discovery Index and is providing coordination and communication among those interested in Big Data training and education (the BD2K Training Consortium).

Taken together, the BD2K training and educational programs will improve the ability of the entire biomedical science community to utilize the growing volume and complexity of data. Additional information about BD2K's portfolio of training and education awards is available [online](#).

**Awards:** Application budgets may not exceed \$200,000 in direct costs annually and need to reflect the actual needs of the proposed project.

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

**Deadline:** August 2, 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.

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## **Grant Program: Development and Application of PET and SPECT Imaging Ligands as Biomarkers for Drug Discovery and for Pathophysiological Studies of CNS Disorders (R01)**

**Agency:** National Institutes of Health PAR-16-26

**RFP Website:** <http://grants.nih.gov/grants/guide/pa-files/PAR-16-266.html>

**Brief Description:** This FOA is intended to stimulate the development of radioligands for molecular targets (e.g., receptors, cell adhesion molecules, intracellular messengers, and disease related proteins) that are of broad interest to the scientific community. The widespread availability and use of these radioligands are expected to: 1) accelerate research on identifying and characterizing the neural circuits and pathways implicated in the pathophysiology of brain disorders (especially mental and behavioral disorders, substance abuse, neurodegenerative disorders, and pediatric brain disorders) and brain changes with age, and 2) facilitate the identification of new therapeutic targets and the development of new compounds as potential therapeutic agents. Research partnerships among investigators in both academia and pharmaceutical and biotechnology industries are encouraged to more rapidly develop PET and

SPECT radiotracers and apply neuroimaging in drug discovery, biomarker development/qualification, and pathophysiological studies.

The proposed development of a radioligand (agonist, antagonist, or allosteric modulator) for a molecular target or for a radioimaging probe to monitor changes in a cellular process should be well-justified and the resulting radiotracer fit for the intended purpose. There is limited interest, without compelling justification, in another tracer of the same class of targets listed in the [CNS Radiotracer Table](#), or for targets in which a radioligand development effort is underway in the pharmaceutical industry.

The preponderance of tracers for molecular targets developed and utilized to date fall into the pharmacologic class of orthosteric antagonists with the most notable exceptions being ligands for benzodiazepine and opiate receptors (see <http://www.nimh.nih.gov/research-funding/therapeutics/cns-radiotracer-table.shtml>). Our understanding of the relationship between occupancy and downstream effects of agonists and allosteric modulators is still at an early stage such that ligands that would enable more in depth exploration of such relationships would be of particular interest, especially for those neurotransmitter targets that represent opportunities for novel drug discovery.

In addition to PET tracers for potential therapeutic molecular targets, there is interest in tracers that bind to targets that can be used to monitor changes in cellular processes that are linked to brain plasticity or pathophysiology (e.g., neuroinflammation, neurogenesis, mitochondrial function). For instance, markers of microglial activation would fall into this class as would any binding site alteration that could be linked to neurodegenerative processes. Applications to develop these classes of tracers that are not amenable to validation with existing pharmacologic tool compounds should include description of a feasible validation path (e.g., differences in binding as a function of degree of brain pathology such as is the case for PiB (Pittsburgh compound B) or florbetapir measures of amyloid load in Alzheimer's Disease).

Prioritization of molecular targets for ligand development is an ongoing exercise and interested parties are encouraged to contact one of the [NIH Scientific/Research Contacts](#) to discuss the perceived level of need for a particular PET tracer.

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

**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: Methodology and Measurement in the Behavioral and Social Sciences (R21) and (R01)**

**Agency:** National Institutes of Health PAR-16-261

**PAR-16-260, R01 Research Project Grant**

**RFP Website:** <http://grants.nih.gov/grants/guide/pa-files/PAR-16-261.html>

**Brief Description:** The behavioral and social sciences offer significant fundamental insights into the comprehensive understanding of human health, including disease etiology, prevention, treatment, and the promotion of health and well-being. To advance the investigation of behavioral and social factors in health and disease, and enhance the rigor and reproducibility of study results, the participating Institutes and Centers (ICs) invite qualified researchers to

submit research grant applications on methodology and measurement in the behavioral and social sciences relevant to the missions of the NIH ICs.

## **Background**

Methodology encompasses research design, measurement, data collection, and data analysis techniques. Research design addresses selection of appropriate study designs, inclusion/exclusion criteria, sampling plan, study subject protections, participant engagement and recruitment, and procedures and measures to accomplish the research goals and ensure internal and external validity. Measurement addresses the quantification and characterization of study variables relevant to the research hypotheses, in a manner that maximizes the validity, reliability, and utility of the data. Data collection techniques are the tools and procedures for acquiring, integrating and curating data from a wide range of sources, such as self-reports, geocoded mobile devices, sensors, biomarker assay platforms, and complex large-scale datasets. Analytic methods address the conceptual and technical aspects of analyzing, interpreting and reporting data to improve hypothesis testing and prediction. Advancement of methodologic research in design, measurement, data collection and data analysis will enhance the quality and power of human and animal data in health-related behavioral and social science.

## **Research Objectives**

The R21 activity code is intended to encourage new exploratory and developmental research projects. For example, such projects could assess the feasibility of unique and innovative use of an existing methodology to explore a new scientific area. These studies may involve considerable risk but may lead to a breakthrough in a particular area, or to development of novel techniques, methodologies, models, or applications that could have a major impact. Applications for R21 awards should describe projects distinct from those supported through the traditional R01 activity code. For example, long-term projects, or projects designed to increase knowledge in a well-established area, will not be considered for R21 awards.

Applicants are encouraged but not required to address methodologic issues related to:

- interdisciplinary, multimethod, and multilevel approaches in behavioral and social science research, including broadly applicable approaches that foster integration with biomedical, physical, or computational science research or engineering.
- Integrating, mining and modeling behavioral and social science data in combination with genetic, epigenetic, biomarker and imaging data.
- research in diverse populations that are distinctive by virtue of demographics, cultural or linguistic characteristics, sexual orientation or gender identity, health system, mental or physical abilities, underrepresentation in research or other factors, where the outcome would have a significant impact on improving health in that population.
- the study of sensitive health-related behaviors in the context of healthcare, the social environment, and local/state/national policies.
- ethics in research, such as informed consent, enrollment of minors including assent, assessment of risk and benefit, selection and retention of participants, privacy and confidentiality.

**Awards:** Direct costs are limited to \$275,000 for the total two-year period, with no more than \$200,000 in direct costs allowed in any single year.

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

**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. The first standard application due date for this FOA is October 16, 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.

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

**Grant Program: C4ISR, Information Operations and Information Technology System Research**

**Agency: Department of Defense Department of Navy N66001-16-X-3003**

**Website:**

<https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=02e9da033063e613ef68f01bf53e4fdf>

**Brief Description:** The Space and Naval Warfare Systems Center, Pacific (SSC Pacific) is soliciting white papers and proposals in accordance with Federal Acquisition Regulation (FAR) 6.102(d) (2), FAR 35.016 and Department of Defense Grant and Agreement Regulations (DoDGARS) 22.315(a) which provides for competitive selection of basic research, applied research and advanced research (hereinafter referred to as research). Submissions in response to this announcement shall be for areas relating to the advancement of Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) capabilities, enabling technologies for Information Operations and Cyber Operations, and Information Technology systems. Accordingly, proposals selected for award are considered to be the result of full and open competition and fully compliant with PL 98-369, "The Competition in Contracting Act of 1984." This BAA is for procurement contracts (hereinafter referred to as contracts), grants or cooperative agreements. Assistance vehicles and other transactions are not authorized under this announcement. Proposed research should investigate unique and innovative approaches for defining and developing next generation integratable C4ISR capabilities and command suites.

**Awards:** Pre-solicitation, Up to \$5,000,000

**Deadline:** Open until May 12, 2017

**Agency contact:** David Roden, Contract Specialist, 619-553-2087; Cindy J Ledesma, Contracting Officer, 619-553-9311

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**Grant Program: Duchenne Muscular Dystrophy Investigator-Initiated Research Award**

**Agency: Department of Defense Congressionally Directed Medical Research Programs**

**Dept. of the Army - USAMRAA W81XWH-16-DMDRP-IIRA**

**Website:** [http://cdmrp.army.mil/funding/pa/15dmdrpiira\\_pa.pdf](http://cdmrp.army.mil/funding/pa/15dmdrpiira_pa.pdf)

**Brief Description:** Applications to the Fiscal Year 2015 (FY15) Duchenne Muscular Dystrophy Research Program (DMDRP) are being solicited for the Defense Health Agency, Research, Development, and Acquisition (DHA RDA) Directorate, by the U.S. Army Medical Research Acquisition Activity (USAMRAA). As directed by the Office of the Assistant Secretary of Defense for Health Affairs, the DHA RDA Directorate manages and executes the Defense Health Program (DHP) Research, Development, Test, and Evaluation (RDT&E) appropriation. The executing agent for this Program Announcement/Funding Opportunity is the Congressionally Directed Medical Research Programs (CDMRP). The DMDRP was initiated in 2011 to provide support for research of exceptional scientific merit and to promote the understanding, diagnosis, and treatment of DMD. Appropriations for the DMDRP from FY11 through FY14 totaled \$13.6 million (M). The FY15 appropriation is \$3.2M.

The vision of the FY15 DMDRP is to extend and improve the function, quality of life, and lifespan for all individuals diagnosed with DMD. As such, the DMDRP is seeking to better support the development of drugs, devices, and other interventions and promote their effective clinical testing. Additionally, DMDRP supports the efforts of the National Institutes of Health

Muscular Dystrophy Coordinating Committee (MDCC) to update the Action Plan for the Muscular Dystrophies, which prioritizes the needs to improve treatments and reduce the disease burden for muscular dystrophy including Duchenne.

**Awards:** The maximum period of performance is 3 years.

The anticipated direct costs budgeted for the entire period of performance will not exceed **\$575,000**. Indirect costs are to be budgeted in accordance with the organization's negotiated rate. No budget will be approved by the Government exceeding **\$575,000** 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), July 22, 2016
- **Invitation to Submit an Application:** September 2016
- **Application Submission Deadline:** 11:59 p.m. ET, October 21, 2016

**Agency contact:** Questions related to Program Announcement/Funding Opportunity content or submission requirements as well as questions related to the submission of the pre-application through eBRAP should be directed to the CDMRP Help Desk, which is available Monday through Friday from 8:00 a.m. to 5:00 p.m. ET. Response times may vary depending upon the volume of inquiries. Phone: 301-682-5507 Email: [help@eBRAP.org](mailto:help@eBRAP.org)

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## **Grant Program: Spinal Cord Injury Research Program Investigator-Initiated Research Award**

**Agency: Department of Defense Congressionally Directed Medical Research Programs W81XWH-16-SCIRP-IIRA**

**Website:** [http://cdmrp.army.mil/funding/pa/16scirpiira\\_pa.pdf](http://cdmrp.army.mil/funding/pa/16scirpiira_pa.pdf)

**Brief Description:** Applications to the Fiscal Year 2016 (FY16) Spinal Cord Injury Research Program (SCIRP) are being solicited for the Defense Health Agency, Research, Development, and Acquisition (DHA RDA) Directorate, by the U.S. Army Medical Research Acquisition Activity (USAMRAA). As directed by the Office of the Assistant Secretary of Defense for Health Affairs (OASD[HA]), the DHA RDA Directorate manages the Defense Health Program (DHP) Research, Development, Test, and Evaluation (RDT&E) appropriation. The managing agent for this Program Announcement/Funding Opportunity is the Congressionally Directed Medical Research Programs (CDMRP). The SCIRP was initiated in 2009 to provide support for research of exceptional scientific merit that has the potential to make a significant impact on improving the health and well-being of military Service members, Veterans, and other individuals living with spinal cord injury (SCI). Appropriations for the SCIRP from FY09 through FY15 totaled \$157.85 million (M). The FY16 appropriation is \$30M.

The FY16 SCIRP challenges the scientific community to design research that will foster new directions for and address neglected issues in the field of SCI-focused research. Applications from investigators within the military Services, and applications involving multidisciplinary collaborations among academia, industry, the military Services, the Department of Veterans Affairs (VA), and other federal government agencies are highly encouraged. Though the SCIRP supports groundbreaking research, all projects must demonstrate solid scientific rationale.

**Awards:** The maximum period of performance is 3 years.

The anticipated direct costs budgeted for the entire period of performance will not exceed **\$500,000**. Indirect costs are to be budgeted in accordance with the organization's negotiated rate. No budget will be approved by the Government exceeding **\$500,000** 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 21, 2016
- **Invitation to Submit an Application:** July 2016
- **Application Submission Deadline:** 11:59 p.m. ET, September 21, 2016

**Agency contact:** Questions related to Program Announcement/Funding Opportunity content or submission requirements as well as questions related to the submission of the pre-application through eBRAP should be directed to the CDMRP Help Desk, which is available Monday through Friday from 8:00 a.m. to 5:00 p.m. ET. Response times may vary depending upon the volume of inquiries. Phone: 301-682-5507 Email: [help@eBRAP.org](mailto:help@eBRAP.org)

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**Grant Program: Spinal Cord Injury Research Program Translational Research Award**

**Agency: Department of Defense Congressionally Directed Medical Research Programs W81XWH-16-SCIRP-TRA**

**Website:** [http://cdmrp.army.mil/funding/pa/16scirptra\\_pa.pdf](http://cdmrp.army.mil/funding/pa/16scirptra_pa.pdf)

**Brief Description:** Applications to the Fiscal Year 2016 (FY16) Spinal Cord Injury Research Program (SCIRP) are being solicited for the Defense Health Agency, Research, Development, and Acquisition (DHA RDA) Directorate, by the U.S. Army Medical Research Acquisition Activity (USAMRAA). As directed by the Office of the Assistant Secretary of Defense for Health Affairs (OASD[HA]), the DHA RDA Directorate manages the Defense Health Program (DHP) Research, Development, Test, and Evaluation (RDT&E) appropriation. The managing agent for this Program Announcement/Funding Opportunity is the Congressionally Directed Medical Research Programs (CDMRP). The SCIRP was initiated in 2009 to provide support for research of exceptional scientific merit that has the potential to make a significant impact on improving the health and well-being of military Service members, Veterans, and other individuals living with spinal cord injury (SCI). Appropriations for the SCIRP from FY09 through FY15 totaled \$157.85 million (M). The FY16 appropriation is \$30M.

The FY16 SCIRP challenges the scientific community to design research that will foster new directions for and address neglected issues in the field of SCI-focused research. Applications from investigators within the military Services, and applications involving multidisciplinary collaborations among academia, industry, the military Services, the Department of Veterans Affairs (VA), and other federal government agencies are highly encouraged. Though the SCIRP supports groundbreaking research, all projects must demonstrate solid scientific rationale.

The FY16 SCIRP encourages applications that specifically address one or more of the following areas:

- Pre-hospital, en route care, and early hospital management of SCI
- Development, validation, and timing of promising interventions to address consequences of SCI and to improve recovery, including, but not limited to:
  - ○ Bladder, bowel, and autonomic dysfunction
  - ○ Cardiometabolic dysfunction
  - ○ Neuropathic pain and sensory dysfunction
  - ○ Pressure ulcers
  - ○ Respiratory dysfunction
  - ○ Sexual dysfunction
- Identification and validation of best practices in SCI care, including, but not limited to:
  - ○ Critical care interventions
  - ○ Interventions for musculoskeletal health
  - ○ Rehabilitation interventions
  - ○ Surgical interventions

- ○ Psychosocial and behavioral interventions in military/Veteran populations

**Awards:** The maximum period of performance is 3 years.

The anticipated direct costs budgeted for the entire period of performance will not exceed **\$500,000**. Indirect costs are to be budgeted in accordance with the organization's negotiated rate. No budget will be approved by the Government exceeding **\$500,000** 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 21, 2016
- **Invitation to Submit an Application:** July 2016
- **Application Submission Deadline:** 11:59 p.m. ET, September 21, 2016

**Agency contact:** Questions related to Program Announcement/Funding Opportunity content or submission requirements as well as questions related to the submission of the pre-application through eBRAP should be directed to the CDMRP Help Desk, which is available Monday through Friday from 8:00 a.m. to 5:00 p.m. ET. Response times may vary depending upon the volume of inquiries. Phone: 301-682-5507 Email: help@eBRAP.org

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**Grant Program: Peer Reviewed Medical Research Program: Investigator-Initiated Research Award**

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

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

**Brief Description:** Applications to the Fiscal Year 2016 (FY16) Peer Reviewed Medical Research Program (PRMRP) are being solicited for the Defense Health Agency, Research, Development, and Acquisition (DHA RDA) Directorate, by the U.S. Army Medical Research Acquisition Activity (USAMRAA). As directed by the Office of the Assistant Secretary of Defense for Health Affairs (OASD[HA]), the DHA RDA Directorate manages the Defense Health Program (DHP) Research, Development, Test, and Evaluation (RDT&E) appropriation. The managing agent for this Program Announcement/Funding Opportunity is the Congressionally Directed Medical Research Programs (CDMRP). The PRMRP was initiated in 1999 to provide support for military health-related research of exceptional scientific merit. Appropriations for the PRMRP from FY99 through FY15 totaled \$1.092 billion. The FY16 appropriation is \$278.7 million (M).

The vision of the FY16 PRMRP is to improve the health and well-being of all military Service members, Veterans, and beneficiaries. The PRMRP challenges the scientific and clinical communities to address at least one of the FY16 Topic Areas with original ideas that foster new directions along the entire spectrum of research and clinical care. The program seeks applications in laboratory, clinical, behavioral, epidemiologic, and other areas of research to advance knowledge in disease etiology, improve prevention, detection, diagnosis, treatment, and quality of life for those affected by a relevant disease or condition, and to develop and validate clinical care or public health guidelines.

**Awards:** The anticipated direct costs budgeted for the entire period of performance will not exceed **\$1.2M**. Indirect costs are to be budgeted in accordance with the organization's negotiated rate. No budget will be approved by the Government exceeding **\$1.2M** 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 23, 2016

- **Invitation to Submit an Application:** August 2016
  - **Application Submission Deadline:** 11:59 p.m. ET, October 19, 2016
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## Department of Energy

### **Grant Program: Solar Energy Evolution and Diffusion Studies II – State Energy Strategies (SEEDSII-SES)**

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

**DE-FOA-0001496**

**RFP Website:** <https://eere-exchange.energy.gov>

<https://eere-exchange.energy.gov/#FoalId5aa6f510-8e5c-4012-8d3a-f89f90e5d66c>

**Brief Description:** As part of the Department of Energy's Grid Modernization and SunShot Initiatives, this Enabling Extreme Real-Time Grid Integrations of Solar Energy (ENERGISE) Funding Opportunity Announcement (FOA) supports the research and development of highly scalable distribution system planning and real-time operation solutions that enables seamless interconnection and integration of high penetration solar generation onto the electricity grid in a cost-effective, secure, and reliable manner. The envisioned ENERGISE solutions will require the extensive use of sensor, communication, and data analytics technologies to gather up-to-the-minute measurement and forecast data from diverse sources and perform continuous optimization analysis and active control for existing and new PV installations in real time. The solutions need be compatible with the existing grid architecture in the near term and with the advanced grid architecture in the long term. The solutions should also be designed with consideration of the interoperability and cybersecurity requirements. The full Funding Opportunity Announcement (FOA) is posted on the EERE eXCHANGE website at <https://eere-exchange.energy.gov>. Applications must be submitted through the EERE eXCHANGE website to be considered for award. The applicant must first register and create an account on the EERE eXCHANGE website. A User Guide for the EERE eXCHANGE can be found on the EERE website <https://eere-exchange.energy.gov/Manuals.aspx> after logging in to the system. Information on where to submit questions regarding the content of the announcement and where to submit questions regarding submission of applications is found in the full FOA posted on the EERE eXCHANGE website.

**Awards:** Up to \$4,000,000. **Anticipated Funding:** approximately \$25 million.

**Deadline:** August 26, 2016

**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: Space Geodesy Research Program**

**Agency: NASA NNH16ZDA001N-SGR**

**RFP Website:**

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={5DFB376D-E44C-3615-D1D4-D76909980108}&path=init>

**Brief Description:** The Space Geodesy Program (SGP) has the long-range goal of building, deploying, and operating a next generation NASA Space Geodesy Network (NSGN) of integrated, multi-technique space geodetic observing stations. This infrastructure enables the establishment and maintenance of a precise terrestrial reference frame that is foundational to many Earth observing missions and location-based observations. SGP produces observations that refine our knowledge of Earth's shape, rotation, orientation, and gravity, advancing our understanding of the motion and rotation of tectonic plates, elastic properties of the crust and

mantle, mantle-core interactions, solid Earth tides, and the effects of surface loading resulting from surface water, ground water, glaciers, and ice sheets.

SGP seeks the implementation of NSGN core sites that are comprised of the four major space geodetic observing systems: Very Long Baseline Interferometry (VLBI), Satellite Laser Ranging (SLR), Global Navigation Satellite System (GNSS), and Doppler Orbitography and Radio-positioning by Integrated Satellite (DORIS). A prototype core site with all four geodetic techniques at NASA's Geophysical and Astronomical Observatory completed demonstration of next-generation systems in 2013. This site now serves as a model for upgrading and expanding the NSGN as part of NASA's contribution to the Global Geodetic Observing System (GGOS). The new network is expected to improve the International Terrestrial Reference Frame (ITRF), as well as all other network products (e.g., precision orbit determination), with associated benefits to the supported and tracked missions, science projects, and engineering applications.

**Award:** \$750,000 per year up to 2 years.

**Letter of Intent:** June 15, 2016.

**Proposal Deadline:** August 15, 2016

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### **Grant Program: ROSES 2016: Modeling, Analysis, and Prediction**

**Agency:** NASA NNH16ZDA001N-MAP

**RFP Website:**

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={833743BB-BD03-297F-58B4-66942F9EC3C9}&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)

NASA's Science Mission Directorate (SMD) supports a broad portfolio of research in the Earth Science Research Program. Key questions that drive the core research efforts of the Earth Science Division within SMD include:

- How is the Earth system changing?
- What are the sources of change in the Earth system and their magnitudes and trends?
- How will the Earth system change in the future?
- How can Earth system science improve mitigation of and adaptation to global change?

Within Earth Science Research, the Modeling, Analysis, and Prediction (MAP) program seeks to develop an understanding of the Earth as a complete, dynamic system. In order to accomplish this objective, the program funds the development of comprehensive, physically-based models of the Earth system, observation/model syntheses, and supporting research.

**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:**

MAP16 NOIs Due Apr 15, 2016

MAP16 Proposals Due Jun 17, 2016

## **National Endowment for Humanities**

### **Grant Program: Fellowship Programs at Independent Research Institutions**

**Agency: National Endowment for Humanities**

**RFP Website:** <http://www.neh.gov/grants/research/fellowship-programs-independent-research-institutions>

**Brief Description:** Grants for Fellowship Programs at Independent Research Institutions (FPIRI) support fellowships at institutions devoted to advanced study and research in the humanities. Recognizing that at times scholars need to work away from their homes and institutions, the FPIRI program sponsors fellowships that provide scholars with research time, a stimulating intellectual environment, and access to resources that might otherwise not be available to them. Fellowship programs may be administered by independent centers for advanced study, libraries, and museums in the United States; American overseas research centers; and American organizations that have expertise in promoting research in foreign countries. Individual scholars apply directly to the institutions for fellowships. [A list of currently funded institutions](#) is available. In evaluating applications consideration is given to the library holdings, archives, special collections, and other resources—either on site or nearby—that institutions make available to fellows.

FPIRI grants provide funding for humanities fellowships of four to twelve months. The fellowships are held at the U.S. grantee institutions or—in the case of overseas research centers and organizations—abroad.

**Awards:** FPIRI grants support fellowship stipends at a rate of \$4,200 per month and a portion of the costs of selecting the fellows, up to \$5,000.

**Deadline:** August 16, 2016

**Contact Information:** Contact the staff of NEH's Division of Research Programs at 202-606-8200 and [fpri@neh.gov](mailto:fpri@neh.gov)

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