

NJIT Research Newsletter

Issue: ORN-2016-019

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/>

Recent Awards: Page 1

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

Webinar Events and Announcements: Page 5

Grant Opportunities: Page 6

Recent Research Grant and Contract Awards

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

PI: Ecevit Bilgili (PI)

Department: Chemical, Biological and Pharmaceutical Engineering

Grant/Contract Project Title: A Comparative Assessment of HPC vs. HPMC/PVP for Drug Nanosuspension Stabilization and Dissolution Enhancement

Funding Agency: Nisso America, Inc.

Duration: 05/06/16-04/02/17

PI: Yan Wu (PI), Wenda Cao (PI), Haimin Wang (Co-PI)

Department: Center for Solar Terrestrial Research

Grant/Contract Project Title: Studies of White-Light and Black-Light Flares Using the 1.6 m New Solar Telescope (NST) at Big Bear Solar Observatory (BBSO)

Funding Agency: NSF

Duration: 05/15/16-04/30/19

PI: Songhua Xu (PI)

Department: Information Systems

Grant/Contract Project Title: A Cyber-Informatics Approach to Studying Migration and Environmental Cancer Risk

Funding Agency: DOE

Duration: 07/11/14-06/30/16

PI: Zafar Iqbal (PI)
Department: Chemistry and Environmental Sciences
Grant/Contract Project Title: Electrical Properties of Novel Nanomaterials
Funding Agency: US Army
Duration: 04/01/13-05/31/16

PI: Bipin Rajendran (PI) and Durgamadhab (Co-PI)
Department: Electrical and Computer Engineering
Grant/Contract Project Title: CampuSense
Funding Agency: Indian Institute of Technology
Duration: 10/01/15-05/30/16

PI: Hyomin Kim (PI)
Department: Center for Solar Terrestrial Research
Grant/Contract Project Title: Understanding Storm-Time Electromagnetic Ion Cyclotron (EMIC) Wave Occurrences and Their Relationship to Ground Signatures
Funding Agency: NSF
Duration: 04/27/15-07/31/17

PI: Kamlesh Sirkar (PI)
Department: Chemical, Biological and Pharmaceutical Engineering
Grant/Contract Project Title: Membrane-based Removal of Ammonia from a Waste Stream and its Recovery
Funding Agency: WR Grace & Co
Duration: 03/15/16-03/14/17

PI: Roman Max (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: Constant Compression Implant Study
Funding Agency: Perception Medical LLC
Duration: 05/15/16-06/30/16

PI: Chase Wu (PI)
Department: Computer Science
Grant/Contract Project Title: Technologies and Tools for Synthesis of Source-to-Sink High-Performance Flows
Funding Agency: DOE
Duration: 03/10/16-03/09/17

In the News...

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

Federal science and engineering funding for academic institutions sees first increase in five years: Federal agencies obligated \$30.8 billion to 996 academic institutions for science and engineering (S&E) activities in Fiscal Year (FY) 2014, the most recent year for which such information is available, a 6 percent increase over the previous year and the first increase in

such funding since FY2009. In current dollars, federal S&E obligations to academic institutions fell by \$1.8 billion between FY2012 and FY2013, then increased by \$1.7 billion between FY2013 and FY2014, according to a new [report](#) from the National Center for Science and Engineering Statistics (NCSES). During that period of rising funds, the number of academic institutions receiving funding climbed by one.

The Department of Health and Human Services (HHS), National Science Foundation (NSF), and the Department of Defense (DOD) together provided 85 percent of all federal academic S&E obligations. HHS accounted for 57 percent; NSF 16 percent; and DOD 12 percent. Most of the remaining funding came from the Department of Agriculture, Department of Energy and NASA. All six of these agencies saw their obligations increase between FY2013 and FY2014. Federal academic S&E obligations include six categories:

- Research and development (R&D) -- all direct, indirect, incidental or related costs corresponding to R&D performed under grant, contract or cooperative agreement. This category increased by \$1.5 billion.
- R&D plant -- all projects whose principal purpose is to support the construction, acquisition, renovation, modification, repair or rental of R&D facilities, land or fixed equipment. This category increased by \$89 million.
- Facilities and equipment for instruction in S&E -- all programs whose principal purpose is to support the construction, acquisition, renovation, modification, repair or rental facilities, land and equipment used for S&E instruction. This category increased by \$7 million.
- Fellowships, traineeships and training grants -- all programs directed primarily toward the development and maintenance of the scientific workforce. This category increased \$444 million.
- General support for S&E -- funds for scientific projects and support activities within a specified discipline. This category increased by \$5 million.
- Other S&E activities -- all academic obligations that cannot be assigned elsewhere, and activities in support of technical conferences, teacher institutions and programs aimed at increasing pre-college and undergraduate students' scientific knowledge. This category increased by \$334 million.

NSF Release 16-059:

http://www.nsf.gov/news/news_summ.jsp?cntn_id=138688&WT.mc_id=USNSF_51&WT.mc_ev=click

NSF Engineering Research Center: The NSF's [Engineering Research Centers](#) (ERCs), university led consortia, have been in place since 1984. The program has been restructured three times as the emphasis has shifted from commercial design, to manufacturing efficiency, and now to the globally competitive environment for innovation. The overall intent is to evolve university engineering education towards real world problems and a direct engagement with industry and foreign collaborators/competitors. The ERCs are expected to include not only university partners, but also provide linkages to industry and to underserved populations of students. ERCs are normally funded for an initial five year period beginning at about \$3.5 million per year, and extended up to ten years. Cost sharing is required but must adhere to a specific formula.

The NSF has now released solicitation [15-589](#) for the next class of ERCs. Proposals may be of two types: open for any engineering topic; or, for Nanosystems Centers. Letters of intent, due September 25th, should specify which category. Viable proposals must outline a compelling vision, and how the center would integrate translational research, workforce development and

innovation ecosystem development. The partnership structure must also include an avenue for foreign participation to provide opportunities for domestic students to collaborate globally. Read More: [Templates for Proposal Preparation](#).

NASA: NASA's [Early Stage Innovations](#) program solicits university-led proposals for the study of innovative, technologies that address high priority needs of the space program. Annual calls focus on specific technology needs are generally funded up to \$500 thousand for two to three years. This year's call, solicitation [NNH16ZOA001N-16ESI B2](#), is aimed at six specific topical areas. These are: modeling of parachute inflation dynamics; additive manufacturing process modeling; development of electric propulsion; semiconductor failure mechanisms; advanced telescope architectures; and, autonomous human spaceflight. Letters of intent are due June 3.

EPA: Fine particles less than 2.5 micrometers in diameter (PM_{2.5}) in the environment are believed to pose a great health risks because they can lodge deeply into the lungs. Although the relationship between long-term exposure to PM_{2.5} and cardiovascular health effects is generally accepted, there remains uncertainties about the shape of the concentration-response relationship. Fully understanding his relationship is critical to public health strategies and regulatory programs. The EPA's Science to Achieve Results Program (STAR) has announced funding opportunity [EPA-G2016-STAR-B1](#) seeking to gain a deeper understanding of the total cardiovascular risk associated with exposure to air pollution, including indicators of early damage. The solicitation anticipates the use of human subjects. The solicitation closes August 2.

Senate Defense Bill Backs 'Manufacturing Universities': An idea put forward in 2014 by Sen. Chris Coons (D-Del.) has made its way into the Senate Armed Services Committee's [defense policy bill](#). It would set up a matching Manufacturing Universities Grant Program to support new manufacturing engineering education programs at the undergraduate or graduate level or enhance existing ones. Criteria for the competitive awards include significant involvement by industry in instruction and research and the likelihood that, within three years, programs can be sustained with non-federal sources. Defense contractors are eligible if, among other things, they develop research partnerships with service academies.

Curbs On Medical Research: The Senate panel would prohibit DoD from funding medical research unless the project is designed to directly protect, enhance, or restore the health and safety of Armed Forces members. It also blocks Congressionally Directed Medical Research that fails to meet certain requirements involving accounting, open competition, and government access to data. For more on the bill, see a [summary](#).

Coasts, Antennas & Superconductors: Specific research areas encouraged by House appropriators include "magnetic and electric field characteristics in coastal ocean regions"; "expandable antennas for satellite communications and collapsible antennas that can benefit ground personnel"; and "high temperature superconductors" with the potential to "reduce the magnetic signature of Navy warships . . . accelerate the use of motors and generators for all-electric ships and aircraft, to develop minesweeping magnets, and to create magnetic energy storage systems and rail guns."

Events and Announcements

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 Lemman, Senior Project Engineer, Power Delivery SAS, POWER Engineers. Jon Lemman 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>

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: NSF Webinar: Understanding SBIR & STTR Phase I Application Process

When: May 24, 2016 2.00 PM - 3.30 PM

Where: http://www.nsf.gov/events/event_summ.jsp?cntn_id=138382&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 Glenn Larsen will walk you through the process and answer questions. **Advance registration is required; to register visit:** <http://bit.ly/1ThDn53> 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).

Grant Opportunity Alerts

Keywords and Areas Included in Grant Opportunity Alerts:

NSF: Division of Physics: Investigator-Initiated Research Projects (PHY); Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII); NSF/DOE Partnership in Basic Plasma Science and Engineering

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); Cancer-Related Behavioral Research through Integrating Existing Data (R21) and (R01); Centers of Research Translation (CORT) (P50); Bioengineering Research Grants (BRG) (R01)

Department of Defense/US Army/DARPA/ONR: Spinal Cord Injury Research Program Investigator-Initiated Research Award; Spinal Cord Injury Research Program Translational Research Award; Peer Reviewed Medical Research Program: Investigator-Initiated Research Award; Department of Defense Science, Technology, Engineering & Mathematics Outreach

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: Modeling, Analysis, and Prediction; Early Stage Innovations (ESI)

National Endowment for Humanities: Grant Program: Summer Stipends

Grant Opportunities

National Science Foundation

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
 - Alex Cronin, Atomic, Molecular and Optical Physics - Experiment, telephone: (703) 292-5302, email: acronin@nsf.gov
 - John Gillaspay, Atomic, Molecular and Optical Physics - Experiment, telephone: (703) 292-7173, email: jgillasp@nsf.gov
 - Michael J. Cavagnero, Atomic, Molecular and Optical Physics - Theory, telephone: (703) 292-2163, email: mcavagne@nsf.gov
-

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 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
- Ephraim P. Glinert, Program Director, IIS, 1125, telephone: (703) 292-8930, email: eglinert@nsf.gov
- Mimi McClure, Associate Program Director, CNS, 1175, telephone: (703) 292-8950, email: mmcclure@nsf.gov
- Sushil Prasad, Program Director, ACI, 1145, telephone: (703) 292-8970, email: sprasad@nsf.gov

Grant Program: NSF/DOE Partnership in Basic Plasma Science and Engineering

Agency: National Science Foundation NSF 16-564

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16564/nsf16564.htm>

Brief Description: Plasma Physics is a study of matter and physical systems whose intrinsic properties are governed by collective interactions of large ensembles of free charged particles. 99.9% of the visible Universe is thought to consist of plasmas. The underlying physics of the collective behavior in plasmas has applications to space physics and astrophysics, materials science, applied mathematics, fusion science, accelerator science, and many branches of engineering.

The National Science Foundation (NSF), with participation of the Directorates for Engineering, Geosciences, and Mathematical and Physical Sciences, and the Department of Energy, Office of Science, Fusion Energy Sciences are continuing the joint Partnership in Basic Plasma Science and Engineering begun in FY1997 and renewed several times since. As stated in the original solicitation (NSF 97-39), which is superseded by the present solicitation, the goal of the initiative is to enhance basic plasma research and education in this broad, multidisciplinary field by coordinating efforts and combining resources of the two agencies. The current solicitation also encourages submission of proposals to perform basic plasma experiments at NSF and DOE supported user facilities, such as the Basic Plasma Science Facility at the University of California, Los Angeles and facilities located at DOE national laboratories, designed to serve the needs of the broader plasma community.

Awards: Standard Grants. **Anticipated Funding Amount:** \$3,500,000.

Letter of Intent: Not Required.

Full Proposal Deadlines: Full Proposal: October 21, 2016

Contacts:

- Vyacheslav (Slava) Lukin, Division of Physics, NSF, 1015 N, telephone: (703) 292-7382, email: vlukin@nsf.gov
 - John Gillaspay, Program Director, Division of Physics, NSF, 1015 N, telephone: (703) 292-7173, email: jgillasp@nsf.gov
 - Bogdan Mihaila, Program Director, Division of Physics, NSF, 1015 N, telephone: (703) 292-8235, email: bmihaila@nsf.gov
 - Nigel A. Sharp, Program Director, Division of Astronomical Sciences, NSF, 1045 S, telephone: (703) 292-4905, email: nsharp@nsf.gov
-

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.

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.

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.

Grant Program: Cancer-Related Behavioral Research through Integrating Existing Data (R21) and (R01)

Agency: National Institutes of Health PAR-16-255

PAR-16-256, R01 Research Project Grant

RFP Website: <http://grants.nih.gov/grants/guide/pa-files/PAR-16-255.html>

Brief Description: This Funding Opportunity Announcement (FOA) invites applications that seek to integrate two or more independent data sets to answer novel cancer control and prevention questions. The goal is to encourage applications that incorporate Integrative Data Analysis (IDA) methods to study behavioral risk factors for cancer, including tobacco use, sedentary behavior, poor weight management, and lack of medical adherence to screening and vaccine uptake. It is encouraged that the data being merged are from different sources and types (including both quantitative and qualitative; data may span different levels such as genetic and environmental) and must include at least one source of behavioral data. Importantly, to be considered for funding, applicants must use existing data sources rather than collect new data. In addition, creating harmonized measures, developing culturally sensitive measures, replicating results and cross-study comparisons is encouraged.

This FOA utilizes the Exploratory/Developmental Grant (R21) mechanism, which supports investigation of novel scientific ideas or new model systems, tools, or technologies that have the potential for significant impact on biomedical or biobehavioral research. An R21 grant application need not have extensive background material or preliminary information. This FOA runs in parallel with an FOA of identical scientific scope, PAR-16-256, which utilizes the Research Project Grant (R01) mechanism.

Background

The most intractable cancer-related problems in public health require research efforts that are integrative in nature and that span data sources and data types. Behavioral researchers have noted challenges such as a plateau in the decline of smoking rates, an increase in the prevalence of overweight and obesity, and low uptake of vaccines such as for HPV. At the same time, integrative methods and analytic approaches to support more efficacious, efficient, collaborative, and cost-effective behavioral research have gone underused.

Cumulative knowledge is a gateway to accelerated discovery, which is far more difficult without the facility to integrate independent data sets. Many existing data, including those found in NCI-supported cohorts, could be repurposed to answer additional questions via integrative methods and thus contribute to the empirical literature, extending the utility of those data to address cancer-related behaviors. Likewise, the rapid advancement of new health information technology now enables novel approaches to social, medical, and behavioral data collection and surveillance. In public health, these 'Big Data' can be leveraged to answer important research questions by integrating existing data that represent different data sources and types from various disciplines. This approach exceeds the current capabilities of traditional data management approaches.

A. Integrative Data Analysis (IDA)

IDA is an efficient and cost-effective set of strategies in which two or more independent data sets are pooled or combined into one and are then statistically analyzed as a whole. These data can include both quantitative and qualitative types. This integration of data typically takes one of two forms:

merging data by common data elements (units of information that are shared or widely used across data collection efforts), where these elements are often multi-item scales or indices but can be individual items; or linking data sets through a common factor at the record level (e.g., linking across data through demographic information) such as that seen in the Surveillance,

Epidemiology, and End Results (SEER) -Medicare data set, or at multiple levels such as the environmental or policy level (e.g., linking state- or county-level information with individual-level data).

IDA approaches differ from, and offer advantages over, other methodological techniques that also strive to build cumulative knowledge bases, such as meta-analyses. In meta-analyses, summary statistics across multiple studies are pooled together. Because IDA techniques pool original raw data, there is no loss of individual information as found within meta-analytic approaches, which allows researchers to find out not only what works, but also for whom and in which context. In addition, use of IDA affords expanded inquiry within many areas of health behavior research. IDA can be used to incorporate unstructured 'Big Data' that were not originally intended for the examination of theoretically relevant measures. For example, searches on Google for health-related topics could be used as an objective measure of information seeking that could supplement what is gleaned from a self-report data source such as the Health Information National Trends Survey (HINTS). Likewise, social media data (e.g., from Twitter or Facebook) could be used to assess perceptions or knowledge about HPV vaccines.

B. Changing Behavioral Science Practices

Generating Harmonized Data by Creating Comparable Measures

One important aspect of IDA involves merging data through the use of common data elements. In behavioral research, common data elements are typically multi-item scales measured at the individual person unit of analysis (e.g., measures of constructs such as depression, anxiety, and quality of life). Given that this FOA does not require the collection of new data and instead has a focus on integrating existing data, it is expected that most of the responsive applications will be integrating data that contain different common data elements. Harmonizing common data elements that measure the same construct using disparate measures can be accomplished under many situations, and this FOA will require researchers to harmonize data across common data elements. Some methods will be relatively easy (e.g., recoding a continuous variable into comparable groupings of a categorical variable for measuring income), though other instances could require the creation and application of more sophisticated methods or traditional methods applied in a novel way. These methods include moderated nonlinear factor analysis, or calibrating to an established 'gold-standard' through Item-Response Theory-related methods such as concurrent calibration or fixed-parameter calibration or non-Item-Response Theory approaches such as equi-percentile linking. Likewise, other harmonization efforts have resulted in the ability to 'cross-walk' and compare measures that were assessed using disparate measures of the same construct. This FOA would encourage data harmonization and the results could be utilized by other researchers, thus contributing back to the research community.

Assessing for Cultural Equivalence across Measures

Using the exact same common data elements across independent projects sharply increases the ability to merge and directly compare data because they contain a common data element with a shared definition and the same set of permissible values. However, simply using the same common data elements does not ensure data comparability. Even with the same common data elements, it is possible that individuals from different groups (e.g., race/ethnicity, regions of the country) will not show the same probability of obtaining a score on a common data element even though they possess the same amount of the construct being assessed, a situation known as Differential Item Functioning, a type of measurement bias. There are many methods to control for the presence of Differential Item Functioning, including the Mantel-Haenszel statistic approach to Item Response. The successful applicant would conduct such an evaluation to test for comparability. Through this process, scores on the common data elements

could be placed on the same scale, thereby developing common data elements that are culturally sensitive across different groups such as race/ethnicity, gender, or region of the country.

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

Letter of Intent: January 7, 2017

Deadline: February 15, 2017; June 15, 2017; February 15, 2018; June 15 2018; February 15, 2019; June 14, 2019, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.

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

Grant Program: Centers of Research Translation (CORT) (P50)

Agency: National Institutes of Health RFA-AR-17-001

RFP Website: <http://grants.nih.gov/grants/guide/rfa-files/RFA-AR-17-001.html>

Brief Description: This Funding Opportunity Announcement (FOA) invites applications for Centers of Research Translation (CORT). Overall, a CORT research program could be carried out by a synergistic team of scientists who will address a highly significant translational research challenge in a single or a group of highly-related disease(s) or condition(s) within the mission of the NIAMS. The focus of research could be either 1) a disease-targeted translational theme addressed by synergistic Research Projects with optional Research Cores; or 2) a disease-related critical translational research question addressed through a single collaborative Research Project enabled by a number of highly interactive Research Cores whose work is integrated over time during the development and implementation of the Project. A CORT must have a minimum of three highly meritorious research components consisting of one or more translational Research Projects and one or more Research Cores. An Administrative Core is required in all applications. To facilitate a team science approach, the lead investigators of the research components must be drawn from relevant and, as appropriate, different research disciplines, and may be based in different departments, divisions, and/or institutions. Combined, the projects and cores will generate new knowledge that will improve our understanding of human pathophysiology, and lead to identification of new targets, other tangible products or deliverables and development of more effective treatment, diagnostic or prevention strategies for human disease.

Awards: Application budgets are limited to \$1M direct costs per year.

Letter of Intent: September 11, 2016

Deadline: October 11, 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.

No late applications will be accepted for this Funding Opportunity Announcement.

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

Grant Program: Bioengineering Research Grants (BRG) (R01)

Agency: National Institutes of Health PAR-16-242

RFP Website: <http://grants.nih.gov/grants/guide/pa-files/PAR-16-242.html>

Brief Description: The goal for a bioengineering research grant (BRG) is to foster the development of an innovative technology, model, technique, design, or method that has the potential for significant impact on biomedical research by infusing principles and concepts from the quantitative sciences.

The purpose of this FOA is to encourage BRG applications that: 1) apply a multidisciplinary approach to the solution of a biomedical problem; and 2) integrate, optimize, validate, translate or otherwise accelerate the adoption of promising tools, methods and techniques for a specific research or clinical problem in basic, translational, or clinical science and practice. A BRG application may propose design-directed, developmental, discovery-driven, or hypothesis-driven research and is appropriate for small teams applying an integrative approach to increase our understanding of and solve problems in biological, clinical or translational science.

Research Objectives

Many major biomedical research problems are best addressed with a multidisciplinary approach that bridges the life and physical sciences. Principles and techniques in quantitative sciences such as physics, mathematics, chemistry, computer sciences, and engineering are increasingly applied to good effect in biomedical research. Bioengineering approaches integrate principles from diverse technical and biomedical fields, and the resulting multi-disciplinary research provides new understanding, innovative technologies, and new products that improve basic knowledge, human health, and quality of life. This FOA seeks to encourage collaborations of quantitative and physical scientists with biomedical researchers to catalyze the development of innovative bioengineering approaches to the solution of important problems in biomedical research, clinical investigations, and medical practice.

Significant projects may include, but are not limited to: validation and translation of promising tools for prevention, monitoring or intervention; development of quantitative, predictive models of complex biological systems; integration and optimization of technologies that significantly increase sensitivity, specificity, positive predictive value, negative predictive value, efficiency, or throughput of measurements to address unsolved biological or medical questions; or engineering and testing of delivery systems, tissues, therapeutics, implants, and prosthetics that may improve treatment and healthcare.

Innovation in this biomedical engineering FOA has a broad definition that includes development of new methods, ideas, or tools, integration of existing components into new combinations that deliver greater capabilities, new efficiencies, and/or greater effects. Overall impact of these advances may include reducing disparities in care, promoting wellness and independent living, increasing access to and utility of technologies to improve quality of life, reducing cost and complexity of procedures, and increasing throughput, sensitivity and specificity of diagnostic tests.

A project should clearly serve the mission of one or more of the NIH Institutes or Centers participating in this FOA. Investigators are encouraged to contact the designated [Scientific/Research contacts](#) for individual institute focus areas that will be supported. Applicants who seek to establish proof-of-concept are encouraged to respond to the Exploratory Bioengineering Research Grant (EBRG) FOA [<http://grants.nih.gov/grants/guide/pa-files/PA-16-040.html>]. Large team projects with a specific goal that can be addressed in 5-10 years are encouraged to respond to the Bioengineering Research Partnership (BRP) FOA [<http://grants.nih.gov/grants/guide/pa-files/PAR-14-092.html>].

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

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

Department of Defense/US Army/DARPA/ONR

Grant Program: 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

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

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/16scirptr_a_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

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

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

Grant Program: Department of Defense Science, Technology, Engineering & Mathematics Outreach

Agency: DoD Air Force Academy USAFA-FOA-2016-2

RFP Website:

<https://www.fbo.gov/index?s=opportunity&mode=form&id=e097d4d7eb880e844bb5547012d43408&tab=core&cvview=0>

Brief Description: The objective of this FOA is to invite white papers and, after receipt of an RFP, proposals that can assist the Air Force in supporting the DoD STEM education and outreach goals and strategies. The OSD STEM Office seeks to execute a program that effectively implements critical elements of DoD's Science and Technology strategy. Exposure to STEM careers could also include DoD and other Government research and career opportunities. Education and outreach activities will support and help sustain the nation's future STEM capabilities and readiness. Such education and outreach could potentially also aid the ongoing mission of the DoD through sustainable partnerships, student engagement opportunities (including authentic STEM experiences), and mentorship. The estimated program cost reflects an estimated value only. This estimate is not a promise of funding. Funding is uncertain and is

subject to change. No award will be made under this announcement until funds are available. The Government reserves the right to cancel this announcement, either before or after the closing date. In the event the Government cancels this announcement, the Government has no obligation to reimburse an applicant for any costs. Changes in availability may occur as a result of the exercise of Government discretion.

Awards: Various

Deadline: Aug 08, 2016 White papers are due by eligible, interested parties no later than (NLT) 3:00 PM, Mountain Time on 16 June 2016. Full proposals are due by parties who receive a Request for Proposal (RFP) NLT 3:00 PM, Mountain Time on 26 July 2016

Agency contact:

Olivia F. Epps

olivia.epps@us.af.mil

Phone: 7193334193

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/#Foaid5aa6f510-8e5c-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

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

**Agency: Department of Energy Advanced Research Projects Agency Energy
DE-FOA-0001562**

RFP Website: <https://arpa-e-foa.energy.gov/#Foaid1f46538f-5fae-45c0-a12d-59cbe2e6992e>

Brief Description: The purpose of the **R**enewable **E**nergy to **F**uels through **U**tilization of **E**nergy-dense **L**iquids (**REFUEL**) program is to develop scalable technologies for conversion of electrical or thermal energy from renewable sources into chemical energy contained in energy dense Carbon-Neutral Liquid Fuels (CNLF) that can be stored, transported, and later converted into hydrogen or electricity to provide power for transportation and distributed energy generation. Because CNLFs can be stored for extended periods of time and then transported to consumers using existing and inexpensive technology for liquid fuel delivery and distribution, they offer a unique opportunity to reduce both the need for energy imports and carbon emissions from the transportation sector. In meeting that need, they also have the potential to enable increased penetration of intermittent renewable energy sources. The success of this program depends on developing technologies in two categories: (1) the synthesis of CNLFs using intermittent renewable energy sources and water and air (N₂ and CO₂) as the only chemical input streams and (2) the conversion of CNLFs delivered to the end point to another form of energy (e.g. hydrogen or electricity)

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

Deadline: First Deadline for Questions to ARPA-E-CO@hq.doe.gov: 5 PM ET, May 18, 2016

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

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

Submission Deadline for Full Applications: 5 PM ET, TBD

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

NASA

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

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.

The modeling and data assimilation supported by the MAP program is observation-driven. That is, the direction of the modeling/assimilation work is guided by available and anticipated observations and its goal is to extract from the observations as much value as possible. This involves rigorous examination and utilization of observations in a global Earth system context. The modeling integrates across all the research activities in NASA's Earth science research program, and spans and connects the spatial and temporal scales that characterize satellite observations and observations from ground and air based campaigns. This approach facilitates the validation of the satellite observations and observationally-based improvements of Earth system model components, leading to models that accurately represent the Earth system with diagnostic and predictive skill. MAP strives to generate models and model components that are well documented, thoroughly evaluated, interoperable, robust, and consistent with current coding standards and practices

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

Grant Program: Early Stage Innovations (ESI)

Agency: NASA NNH16ZOA001N-16ESI_B2

RFP Website:

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={DBB28E7E-D718-E268-3641-15F5E18AFF85}&path=open>

Brief Description: NASA's Space Technology Mission Directorate (STMD) hereby solicits proposals from accredited U.S. universities for innovative, early-stage space technology research of high priority to NASA's Mission Directorates. This specific Appendix is titled Early Stage Innovations (ESI) and is one of three calls for proposals from STMD's Space Technology Research Grants (STRG) Program. Early Career Faculty (ECF) appears as Appendix B1 under the SpaceTech-REDDI NRA, and NASA Space Technology Research Fellowships (NSTRF) is a separate solicitation. This Appendix seeks proposals on specific space technologies that are currently at low Technology Readiness Levels (TRL). Investment in innovative low-TRL research increases knowledge and capabilities in response to new questions and requirements, stimulates innovation, and allows more creative solutions to problems constrained by schedule and budget. Moreover, it is investment in fundamental research activities that has historically benefited the Nation on a broader basis, generating new industries and spin-off applications.

Awards: Up to \$500K for three years.

Notices of Intent Due: June 3, 2016 (5 PM Eastern)

Full Proposals Deadline: July 1, 2016 (5 PM Eastern, 2 PM Pacific)

National Endowment for Humanities

Grant Program: Summer Stipends

Agency: National Endowment for Humanities

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

Brief Description: Summer Stipends support individuals pursuing advanced research that is of value to humanities scholars, general audiences, or both.

Eligible projects usually result in articles, monographs, books, digital materials and publications, archaeological site reports, translations, editions, or other scholarly resources.

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

Program Statistics

In the last five competitions the Summer Stipends program received an average of 892 applications per year. The program made an average of 81 awards per year, for a funding ratio of 9 percent. The number of applications to an NEH grant program can vary widely from year to year, as can the funding ratio. Information about the average number of applications and awards in recent competitions is meant only to provide historical context for the current competition. Information on the number of applications and awards in individual competitions is available from stipends@neh.gov.

Awards: Summer Stipends support continuous full-time work on a humanities project for a period of two months. Successful applicants receive a stipend of \$6,000 .

Deadline: Applications must be submitted on or before 11:59 P.M. (Eastern Time) on September 29, 2016

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