

NJIT Research Newsletter

Issue: ORN-2016-022

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: Iulian Neamtiu (PI)

Department: Computer Science

Grant/Contract Project Title: Improving Android Security with Dynamic Slicing

Funding Agency: NSF

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

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: Namas Chandra (PI) and Maciej Skotak (Co-PI)

Department: Center for Injury Biomechanics, Material and Medicine; Biomedical Engineering

Grant/Contract Project Title: Advanced Characterization, Engineering, & Testing of Advanced Materials, Processes & Technologies

Funding Agency: US Army

Duration: 06/01/16-05/31/17

PI: Tara Alvarez (PI)

Department: Biomedical Engineering

Grant/Contract Project Title: Adaptive Filtering Lenses to Reduce Visual Fatigue

Funding Agency: Transitions Optical Inc.

Duration: 04/01/16-09/30/17

In the News...

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

Congress Appropriation Bill: The Senate Labor-HHS-Education Subcommittee moved forward on an [appropriations bill](#) which would provide \$34.1 billion in discretionary funding for NIH, a \$2 billion increase over current spending, the second major increase in the past two years. Increases were specifically targeted for the Precision Medicine Initiative, Alzheimer's disease research, the BRAIN initiative, and antibiotic resistance. Every NIH Institute and Center would receive increases under this bill. The legislation received bipartisan support and avoided policy riders and "poison pills." The bill also expanded Pell Grants to include year around eligibility. The Subcommittee estimated that by including summer grants, this provision would provide one million students an additional Pell grant of about \$1,650 during the 2017-18 school year. Key items included \$300 million for Precision Medicine; \$1.39 billion for Alzheimer's research; \$250 million for the BRAIN Initiative to map the human brain; \$333.4 million for Institutional Development Award; and \$463 million to Combat Antibiotic Resistant Bacteria Read More: <http://www.appropriations.senate.gov/news/majority/fy2017-labor-hhs-and-education-appropriations-bill-cleared-for-senate-consideration>

NSF: Ideas Labs are structured workshops intended to focus on "grand challenge" problems and the transformative research that can address them. NSF and NASA have jointly announced [program solicitation 16-570](#), an Ideas Lab addressing the *Origin of Life*. Topical proposals should be related to the theoretical framework for the origin of life, understanding plausible pathways for the origin of life, and how this would affect search for life on other worlds. The workshop seeks to examine and differentiate between two prevalent theories of the prebiotic origin of life (known as the "*metabolism first*" and "*RNA first*" models). Preliminary proposals are due August 5. Those selected for full proposals will be invited by December 19. Read More: [Bright Hub](#). Please see details on the RFP NSF 16-570 in the Grant Opportunities section below.

NIH: A major thrust of the Vice President's *Cancer Moonshot* initiative is to promote the free and open exchange of research data. Now, the Vice President has announced the establishment of a [Genetic Data Commons](#) providing the cancer research community with a unified data repository, enabling data sharing across cancer genomic studies through commonly established data protocols and standardized software algorithms. The new initiative would begin by combining existing NIH data systems, which includes The Cancer Genome Atlas ([TCGA](#)), Therapeutically Applicable Research to Generate Effective Treatments ([TARGET](#)), and the Cancer Genome Characterization Initiative ([CGCI](#)). Senate appropriators are enthusiastic about advances by the National Cancer Institute "that have and are producing massive amounts of new data," the report posted on the website <https://www.congress.gov/congressional-report/114th-congress/senate->

report/274/1?q=%7B%22search%22%3A%5B%222017+Labor+Health+Education+appropriation+act%22%5D%7D states. "To make the fullest use of all of this information, NCI has committed resources to launch the Genomic Data Commons to stimulate sharing of information among researchers." NCI recognizes that making full use of this vast amount of data entails "investment in open data hosting [and in] scalable, interactive data management that combines imaging, clinical, and molecular datasets," the panel says, as well as further data standards development. It directs NCI to come up with a plan to "build a cancer genomics data ecosystem." Appropriators are also interested in "the use of precision medicine to develop therapies for late stage and other cancers where conventional treatments have proved largely ineffective."

A New Day For Entrepreneurs: A recently implemented law that lets startups raise up to \$1 million from regular investors annually through crowdfunding "is a potential game changer for many kinds of entrepreneurs," the White House Office of Science and technology Policy exults in a [blog post](#).

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](#)

Events and Announcements

Event: Webinar: Welcome to the Panopticon(s)

When: June 16, 2016 12.00 PM-1.00 PM

Where: http://www.nsf.gov/events/event_summ.jsp?cntn_id=138899&org=NSF

Brief Description: Quietly, almost without notice, our digital and physical worlds turned into a series of panopticons, a network of both private companies and governments intent on monitoring everything. They all have adopted a similar solution: Their objectives require the ability to target anybody (either for advertising or intelligence), yet as they don't know who they may wish to target at time of collection, they have chosen to collect data on everybody. The tracking takes place in various forms, from elements and advertising on the page, to companies providing profiles and lists, to passive surveillance and active censorship of networks by governments and potentially criminals. These technologies are not purely passive but can also be used to exploit targets. By building our own systems (or assigning them as homework), developing techniques to monitor and mitigate tracking, and participating as customers of private industry we can gain insights into how they work and the nearly invisible watchers affecting our modern world.

Biographical Sketch of the Speaker: Nicholas Weaver received a B.A. in Astrophysics and Computer Science in 1995, and a Ph.D. in Computer Science in 2003 from the University of California, Berkeley. Although his dissertation was on novel FPGA architectures, he also focused on computer security, including postulating the possibility of very fast computer worms in 2001.

He joined the International Computer Science Institute (ICSI) in 2003. His primary research focus is on network security, notably worms, botnets, surveillance, and other internet-scale attacks, and network measurement. Other areas have included both hardware acceleration and software parallelization of network intrusion detection, defenses for DNS resolvers, and tools for detecting ISP-introduced manipulations of a user's network connection.

To Join the Webinar, please register at: <http://www.tvworldwide.com/events/nsf/160616/>

Event: Addressing Quantified Health with an Integrated Chip Solution

When: June 16, 2016 2.00 PM-3.00 PM

Where: <http://spectrum.ieee.org/webinar/addressing-quantified-health-with-an-integrated-chip-solution>

Brief Description: Advancements in semiconductor technology have helped create transformative consumer devices, but so far have had limited impact on the medical world. Medical devices have stringent requirements for safety and effectiveness, and they generally iterate on bulky, power-hungry designs. Samsung's Bio-Processor is a low-power SoC that processes five significant types of biodata – electrocardiogram, photoplethysmogram, bioelectrical impedance, galvanic skin response, skin temperature. It does so by integrating an MCU, DSP, memory, power management, security blocks, and low-power AFEs and ADCs in a small 6x5mm package. Samsung has also developed several algorithms to calculate patient metrics from heart rate and variability to body fat percentage, plus an SDK for device makers to leverage their own expertise. This Bio-Processor solution highlights the importance of a complete platform in enabling a new generation of discreet monitoring devices that bridges consumer- and medical-grade. In today's cost-focused healthcare landscape, such devices are key to complementing hospital care with accurate, cost-effective patient data.

Presenters: Ryan Chien, Product Manager, System LSI, Samsung Semiconductor, Inc. As product manager for Samsung's Bio-Processor system-on-chip (SoC), Ryan Chien is responsible for promoting the product to customers and partners as well as providing evaluation and technical support. Chien has been a member of Samsung's System LSI team for over two years in various marketing roles, including his current responsibilities for the Bio-Processor. Prior to Samsung, Chien spent four years as an industry analyst with the market research firm, IHS, focusing on the SSD and flash memory markets. As a graduate of UCLA, Chien earned his Bachelors of Science in chemical engineering and is currently working toward an MBA at UC Berkeley.

Matthew C. Wiggins, Ph.D. Senior Algorithm Manager – Simband Program: Matthew Wiggins leads the Simband Algorithm Team at Samsung's Menlo Park, California based Strategy and Innovation Center. He specializes in leading programs involving signal acquisition, processing, and subsequent system inference with a focus on physiological systems and biosignals. Prior to his work at Samsung, he led the Algorithm Software Group for HeartWare's new Ventricular Assist Device controller, an FDA Class III medical device to support patients with late stage heart failure. Matthew has also led a variety of signal processing and sensor system programs at TIAX, funded through various US government small business grants. Dr. Wiggins received his B.S. and M.S. in Electrical Engineering with a minor in Biomedical Engineering from the Georgia Institute of Technology as well as his Ph.D. in Bioengineering, minoring in biochemistry/physiology.

Grant Opportunity Alerts

Keywords and Areas Included in Grant Opportunity Alerts:

NSF: Origin of Life A Joint Ideas Lab Activity Between NSF and NASA; Special Guidelines for Submitting Collaborative Proposals under the Division of Chemical, Bioengineering, Environmental, and Transport Systems-Engineering and Physical Sciences Research Council UK (CBET-EPSC) Lead Agency Activity; Developing a National Research Infrastructure for Neuroscience (NeuroNex); Campus Cyberinfrastructure (CC*)

NIH: Ruth L. Kirschstein National Research Service Award Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research; 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

Energy: Innovative Development in Energy-Related Applied Science (IDEAS)

NASA: ROSES 2016: Heliophysics Supporting Research; Atmospheric Composition: Upper Atmospheric Composition Observations

National Endowment for Humanities: Media Projects: Development Grants

Grant Opportunities

National Science Foundation

Grant Program: Origin of Life A Joint Ideas Lab Activity Between NSF and NASA

Agency: National Science Foundation NSF 16-570

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16570/nsf16570.htm>

Brief Description: This solicitation describes an Ideas Lab on “Origin of Life.” Ideas Labs are intensive workshops focused on finding innovative solutions to grand challenge problems. The ultimate aim of this Ideas Lab organized by the Directorates for Biological Sciences (BIO) and Geosciences (GEO) at the National Science Foundation (NSF), and the Astrobiology Program at the National Aeronautics and Space Administration is to facilitate the generation and execution of innovative research projects aimed at identifying and funding potentially transformative research to address grand challenge questions in the origin of life. The primary aim of this Ideas Lab is to foster the development of a theoretical framework that encompasses the “metabolism first” and “RNA first” theories for the origin of life by stimulating creative thinking and new research on the earliest events leading to life on early Earth. Understanding plausible pathways for the origin of life will contribute directly to our understanding of the indispensable properties of life on Earth and inform our search for life on other worlds.

US researchers may submit preliminary proposals for participating in the Ideas Lab only *via* FastLane. Participation in the Ideas Lab is required to be eligible to submit a full proposal. Multidisciplinary ideas developed in the Ideas Lab will be submitted as full proposals to NSF or to NASA by invitation only. Collaboration among researchers is strongly encouraged in the invited full proposals.

Awards: Standard grants. **Anticipated Funding Amount:** \$8,000,000

Letter of Intent: Not Required.

Full Proposal Submission Due Date:

- **Preliminary Proposal Due Date(s) (required)** (due by 5 p.m. submitter's local time): August 05, 2016 required for participation in Ideas Lab

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time): December 19, 2016

Contacts:

- Arcady Mushegian, Program Director, BIO/MCB, telephone: (703) 292-8528, email: amushegi@nsf.gov
 - Charles Liarakos, Program Director, BIO/EF, telephone: (703) 292-7904, email: cliarako@nsf.gov
 - Paco Moore, Program Director, BIO/DEB, telephone: (703) 292-2707, email: fbmoore@nsf.gov
 - Enriqueta C. Barrera, Program Director, GEO/EAR, telephone: (703) 292-7780, email: ebarrera@nsf.gov
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Grant Program: Dear Colleague Letter: Special Guidelines for Submitting Collaborative Proposals under the Division of Chemical, Bioengineering, Environmental, and Transport Systems-Engineering and Physical Sciences Research Council UK (CBET-EPSRC) Lead Agency Activity

Agency: National Science Foundation NSF 16-098

RFP Website:

http://www.nsf.gov/pubs/2016/nsf16098/nsf16098.jsp?WT.mc_id=USNSF_25&WT.mc_ev=click

Brief Description: The Directorate for Engineering (ENG), Division of Chemical, Bioengineering, Environmental and Transport Systems (CBET) of the National Science Foundation and the Engineering and Physical Sciences Research Council UK (EPSRC) are pleased to announce the CBET-EPSRC Lead Agency Activity under a NSF/RCUK Research Cooperation Memorandum of Understanding (MoU). The goal of this activity is to reduce some of the barriers that researchers currently encounter when working internationally. The CBET-EPSRC Lead Agency Activity will allow US and UK researchers to submit a single collaborative proposal that will undergo a single review process.

Proposals will be accepted for collaborative research in areas at the intersection of CBET and the EPSRC's Engineering Theme's missions. Proposers should review the CBET Program Descriptions for research supported through CBET and the EPSRC Engineering Theme for further information on what areas of research are eligible for support through this activity. Proposals are expected to adhere to typical proposal budgets and durations for the relevant CBET and EPSRC program from which funding is sought.

PROPOSAL PREPARATION

1. Before submitting a proposal, researchers should identify a prospective lead agency (either NSF or EPSRC) based on where the largest proportion of their research lies.

2. At least three months in advance of the date the applicants expect to submit a formal proposal (for CBET, October 20th, 2016 for the next fiscal year), proposers must email a short Outline document containing:

- a. A brief description of the proposed research,
- b. The names and qualifications of the researchers, and
- c. Bottom line estimates of total funding (including indirect costs) to be requested from NSF and EPSRC (a detailed budget is not required at this time).

The document should not exceed 5000 characters (including spaces). If NSF is the lead agency, email to cbetrcuk@nsf.gov and if a UK Research Council is the lead agency, email to international@epsrc.ac.uk. If this communication has not taken place, the proposal will be returned without review.

3. The lead agency will share all Outlines received with the non-lead agency for both agencies to check eligibility (whether the proposed research is within the participating agencies' portfolio, and if the proposers and institutions meet agency eligibility requirements).

4. Upon confirmation from both agencies that the collaborative research proposal is appropriate for the CBET-EP SRC Lead Agency Activity, the agencies will decide which agency will act as lead. The lead agency will then contact the researchers to inform them that they may submit a full research proposal to the lead agency.

Awards: Variable

Letter of Intent: Contact the program director as mentioned above.

Full Proposal Submission Due Date: Variable

Contacts:

- If NSF is the lead agency, email to cbetrcuk@nsf.gov and if a UK Research Council is the lead agency, email to international@epsrc.ac.uk. If this communication has not taken place, the proposal will be returned without review.

Grant Program: Developing a National Research Infrastructure for Neuroscience (NeuroNex)

Agency: National Science Foundation NSF 16-569

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16569/nsf16569.htm>

Brief Description: Understanding the brain is one of the grand scientific challenges at the intersection of experimental, theoretical, and computational investigation in the life, physical, behavioral, and cognitive sciences. Rapid proliferation of advanced measurement instrumentation and techniques has allowed researchers to study the brain and behavior at ever finer physical and temporal scales and in broader social and environmental contexts. At the same time, achieving a comprehensive, transformational understanding of the brain in action and in context will require an increased emphasis on systematic, interdisciplinary collaboration and team science, and the increased use of theoretical frameworks, including evolutionary ones, to explore questions that span organizational levels, scales of analysis, and a wider range of species optimal for experimental exploration of brain function. To catalyze such understanding, NSF announced its intention to support the development of innovative, accessible, and shared capabilities and resources towards the establishment of a coherent national infrastructure for neuroscience research, as described in the Dear Colleague Letter [NSF 16-047](#).

The goal of this solicitation is to foster the development and dissemination of (1) innovative research resources, instrumentation, and neurotechnologies, and (2) theoretical frameworks for understanding brain function across organizational levels, scales of analysis, and/or a wider range of species, including humans. This interdisciplinary program is one element of NSF's broader effort directed at Understanding the Brain, a multi-year activity that includes NSF's participation in the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative (<http://www.nsf.gov/brain/>) and the phased approach to develop a national research infrastructure for neuroscience as outlined in the Dear Colleague Letter NSF16-047. NSF envisions a connected portfolio of transformative, integrative projects that create synergistic links across investigators and communities, yielding novel ways of tackling the challenges of understanding the brain in action and in context.

This program solicits proposals that will develop and disseminate innovative neurotechnologies and/or theoretical frameworks that will transform our understanding of the linkages between neural activity and cognition and behavior across different systems,

environments, and species, while also providing an avenue for widespread dissemination of these technologies and theoretical frameworks as well as broad training opportunities.

Awards: Standard grants. **Anticipated Funding Amount:** \$16,000,000 to \$30,000,000

Letter of Intent: September 2, 2016.

Full Proposal Submission Due Date: October 21, 2016

Contacts:

- Edda Thiels, BIO/IOS, telephone: (703) 292-8167, email: ETHIELS@nsf.gov
 - Sridhar Raghavachari, BIO/IOS, telephone: (703) 292-4845, email: sraghava@nsf.gov
 - Reed S. Beaman, BIO/DBI, telephone: (703) 292-7163, email: rsbeaman@nsf.gov
 - Krastan B. Blagoev, MPS/PHY, telephone: (703) 292-4666, email: kblagoev@nsf.gov
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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
 - Amy Walton, ACI Program Director, telephone: (703) 292-4538, email: CCDNIQueries@nsf.gov
 - Jack Brassil, CNS Program Director, telephone: (703) 292-8950, email: CCDNIQueries@nsf.gov
 - Edward Walker, ACI Program Director, telephone: (703) 292-4863, email: CCDNIQueries@nsf.gov
 - Sushil K. Prasad, ACI Program Director, telephone: (703) 292-5059, email: CCDNIQueries@nsf.gov
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National Institutes of Health

Grant Program: Ruth L. Kirschstein National Research Service Award Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research (Parent F31 - Diversity)

Agency: National Institutes of Health PA-16-308

RFP Website: <http://grants.nih.gov/grants/guide/pa-files/PA-16-308.html>

Brief Description: The overall goal of the NIH Ruth L. Kirschstein National Research Service Award (NRSA) program is to help ensure that a diverse pool of highly trained scientists is available in appropriate scientific disciplines to address the Nation's biomedical, behavioral, and clinical research needs. NRSA fellowships support the training of pre-and postdoctoral scientists, dual-degree investigators, and senior researchers. More information about NRSA programs may be found at the [Ruth L. Kirschstein National Research Service Award \(NRSA\)](#) website.

The purpose of the Kirschstein-NRSA Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research (F31) is to provide support for mentored research training leading to the PhD or equivalent research degree, the combined MD/PhD degree, or another formally combined health professional degree and research doctoral degree in the biomedical, behavioral, or clinical sciences for individuals from diverse population groups. This fellowship program will enhance the diversity of the biomedical, behavioral, and clinical research workforce in the United States by providing opportunities for academic institutions to identify and recruit students from diverse population groups to seek graduate degrees in health-related research and apply for this fellowship. The goal of this program is to enhance the number of scientists from diverse population groups who are well prepared for research careers in the biomedical, behavioral, and clinical sciences.

This Kirschstein-NRSA predoctoral fellowship award will enable promising predoctoral students to obtain individualized, mentored research training from outstanding faculty sponsors while conducting well-defined research projects in scientific health-related fields relevant to the missions of the participating NIH Institutes and Centers.

Applicants for this Kirschstein-NRSA F31 award are expected to propose a defined research project and training plan within the mission of the participating Institutes and Centers. The training plan should reflect the applicant's research project, which may be his/her dissertation research project, and facilitate and clearly enhance the individual's potential to develop into a productive, independent research scientist. The training plan should document the need for, and the anticipated value of, the proposed mentored research and training in relationship to the individual's research career goals.

It is expected that the mentored research training experience will provide:

- A strong foundation in research design, methods, and analytic techniques appropriate to the proposed dissertation research;
- The enhancement of the applicant's ability to conceptualize and think through research problems with increasing independence;
- Experience conducting research using appropriate, state-of-the-art methods, as well as presenting and publishing the research findings as first author;
- The opportunity to interact with members of the scientific community at appropriate scientific meetings and workshops;
- Skills needed to transition to the next stage of the applicant's research career; and
- The opportunity to enhance the applicant's understanding of the health-related sciences and the relationship of the proposed research to health and disease.

Although applicants may apply at any time, applications are encouraged once an applicant has identified a specific research project that will be undertaken in the sponsor's laboratory. This often occurs in the second year of a PhD program.

Awards: Award budgets are composed of stipends, tuition and fees, and institutional allowance.

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.

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

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
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Department of Energy

Grant Program: Innovative Development in Energy-Related Applied Science (IDEAS)

Agency: Department of Energy Advanced Research Projects Agency

DE-FOA-0001496

RFP Website: <https://arpa-e-foa.energy.gov/#Foald45210635-66d2-4e12-a9ee-fb39dca1d01b>

Brief Description: This Funding Opportunity Announcement (FOA) provides a continuing opportunity for the rapid support of early-stage applied research to explore innovative new concepts with the potential for transformational and disruptive changes in energy technology. IDEAS awards are intended to be flexible and may take the form of analyses or exploratory research that provides the agency with information useful for the subsequent development of focused technology programs. IDEAS awards may also support proof-of-concept research to

develop a unique technology concept, either in an area not currently supported by the agency or as a potential enhancement to an ongoing focused technology program. Applications must propose concepts that are *not* covered by open ARPA-E focused FOAs and that also do not represent incremental improvements over existing technology.

This FOA is a continuation of the IDEAS Program initially announced in September 2013 and continued for a second year in September 2014. ARPA-E continues to view the IDEAS program as a success and therefore plans to extend this FOA on an annual basis, based on the availability of funds.

Prior to submitting a Concept Paper to this FOA, Applicants may contact an ARPA-E Program Director or an ARPA-E Fellow to discuss their research concept and its potential responsiveness to this FOA. Program Directors and Fellows will respond to Applicant inquiries as their availability permits. **Prior communication with an ARPA-E Program Director or an ARPA-E Fellow is entirely optional and is NOT required prior to Concept Paper submission.** Furthermore, prior communication with an ARPA-E Program Director or an ARPA-E Fellow, or the lack thereof, is not taken into consideration in the technical review of a submitted Concept Paper.

Awards: IDEAS awards are defined as single-phase efforts of durations 12 months or less with a total project cost of \$500,000 or less and will be issued through Grants.

Deadline: September 30, 2016

Agency contact: Applicants will submit brief Concept Papers (4 page maximum) as described below and selected Concept Paper Applicants will then be invited to submit Full Applications. This FOA addresses only the Concept Paper process. Applicants are encouraged to review current ARPA-E projects programs, FOAs, and RFIs prior to application.

NASA

Grant Program: ROSES 2016: Heliophysics Supporting Research

Agency: NASA NNH16ZDA001N-HSR

RFP Website:

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={17AC90CA-FDAF-DDE4-AE6C-DF5AB66C0571}&path=init>

Brief Description: NASA's heliophysics strategic objective is to understand the Sun and its interactions with the Earth and the solar system, including space weather. The Heliophysics Research Program is focused on achieving the goals as defined in the *NASA 2014 Science Plan* (available at <http://nasascience.nasa.gov/about-us/science-strategy>) and the *2013 National Research Council Decadal Strategy for Solar and Space Physics report, Solar and Space Physics: A Science for a Technological Society* (www.nap.edu/catalog.php?record_id=13060). Heliophysics research addresses these recommendations by implementing a program to achieve three overarching science goals:

- Explore the physical processes in the space environment from the Sun to the Earth and throughout the solar system
- Advance our understanding of the connections that link the Sun, the Earth, planetary space environments, and the outer reaches of our solar system
- Develop the knowledge and capability to detect and predict extreme conditions in space to protect life and society and to safeguard human and robotic explorers beyond Earth

The program supports investigations in all subdisciplines of Heliophysics and also supports investigations that span the subdisciplines and address a systems approach — emphasizing the understanding of fundamental processes and interconnections across the traditional science

disciplines. The program seeks to characterize these phenomena on a broad range of spatial and temporal scales, to understand the fundamental processes that drive them, to understand how these processes combine to create space weather events, and to enable a capability for predicting future space weather events. In concert with the other NASA science divisions (Planetary Science, Astrophysics, and Earth Science), the program shares responsibility for learning about the Earth, our solar system, the universe, and their interrelationships.

Proposal Deadline:

HSPHR16 HSR: Heliosphere Step-1 Proposals Due Jul 29, 2016

ITM16 HSR: ITM Step-1 Proposals Due Jul 29, 2016

MAG16 HSR: Magnetosphere Step-1 Proposals Due Jul 29, 2016

SOLR16 HSR: Solar Step-1 Proposals Due Jul 29, 2016

Grant Program: ROSES 2016: Atmospheric Composition: Upper Atmospheric Composition Observations

Agency: NASA NNH16ZDA001N-UACO

RFP Website:

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={B554F971-2BDF-A8A0-A909-8CF7C07DB175}&path=init>

Brief Description: Atmospheric composition changes affect air quality, weather, climate, and critical constituents, such as ozone. Atmosphere-biosphere exchange links terrestrial and oceanic pools within the carbon cycle and other biogeochemical cycles. Solar radiation affects atmospheric chemistry and is thus a critical factor in atmospheric composition. Atmospheric composition is central to Earth system dynamics, since the atmosphere integrates surface emissions globally on time scales from weeks to years and couples several environmental issues. NASA's research for furthering our understanding of atmospheric composition is geared to providing an improved prognostic capability for such issues (e.g., the recovery of stratospheric ozone and its impacts on surface ultraviolet radiation, the evolution of greenhouse gases and their impacts on climate, and the evolution of tropospheric ozone and aerosols and their impacts on climate and air quality). Toward this end, research within the Atmospheric Composition Focus Area addresses the following science questions:

- How is atmospheric composition changing?
- What trends in atmospheric constituents and solar radiation are driving global climate?
- How do atmospheric trace constituents respond to and affect global environmental change?
 - What are the effects of global atmospheric chemical and climate changes on regional air quality?
 - How will future changes in atmospheric composition affect ozone, climate, and global air quality?

NASA expects to provide the necessary monitoring and evaluation tools to assess the effects of climate change on ozone recovery and future atmospheric composition, improved climate forecasts based on our understanding of the forcings of global environmental change, and air quality forecasts that take into account the feedbacks between regional air quality and global climate change. Achievements in these areas via advances in observations, data assimilation, and modeling enable improved predictive capabilities for describing how future changes in atmospheric composition affect ozone, climate, and air quality. Drawing on global observations from space, augmented by suborbital and ground-based measurements, NASA is uniquely poised to address these issues. This integrated observational strategy is furthered via studies of atmospheric processes using unique suborbital platform-sensor combinations to investigate, for

example: (1) the processes responsible for the emission, uptake, transport, and chemical transformation of ozone and precursor molecules associated with its production in the troposphere and its destruction in the stratosphere and (2) the formation, properties, and transport of aerosols in the Earth's troposphere and stratosphere. NASA's research strategy for atmospheric composition encompasses an end-to-end approach for instrument design, data collection, analysis, interpretation, and prognostic studies.

Award: 15 to 20 awards for a total budget of \$6,000,000

Letter of Intent: Not requested.

Proposal Deadline: July 1, 2016.

National Endowment for Humanities

Grant Program: Media Projects: Development Grants

Agency: National Endowment for Humanities

RFP Website: <http://www.neh.gov/grants/public/media-projects-development-grants>

Brief Description: The Media Projects program supports film, television, and radio projects that engage general audiences with humanities ideas in creative and appealing ways. All projects must be grounded in humanities scholarship in disciplines such as history, art history, film studies, literature, drama, religious studies, philosophy, or anthropology. Projects must also demonstrate an approach that is thoughtful, balanced, and analytical (rather than celebratory). The approach to the subject matter must go beyond the mere presentation of factual information to explore its larger significance and stimulate critical thinking. NEH is a national funding agency, so the projects that we support must demonstrate the potential to attract a broad general audience.

Film and television projects may be single programs or a series addressing significant figures, events, or ideas. Programs must be intended for national distribution, via traditional carriage or online distribution. The Division of Public Programs welcomes projects that range in length from short-form to broadcast-length video.

The Division of Public Programs also encourages film and television projects that examine international themes and subjects in the humanities, in order to spark Americans' engagement with the broader world beyond the United States. These projects should demonstrate international collaboration by enlisting scholars based both in the United States and abroad, and/or by working with an international media team. The collaborations should bring broad cross-cultural perspectives to the proposed topics and should be intended primarily for U.S. public audiences.

Radio projects, including podcasts, may involve single programs, limited series, or segments within an ongoing series. They may also develop new humanities content to augment existing radio programming or add greater historical background or humanities analysis to the subjects of existing programs. Programs receiving production grants may be either broadcast or disseminated online. They may be intended for national or regional distribution.

NEH encourages projects that engage public audiences through multiple formats in the exploration of humanities ideas. Proposed projects might include complementary components to a film, television, or radio project. These components should deepen the audience's understanding of the subject in a supplementary manner: for example, book/film discussion programs, supplemental educational websites, or museum exhibitions.

Development Grants enable media producers to collaborate with scholars to develop humanities content and to prepare programs for production. Grants should result in a script and

may also yield a detailed plan for outreach and public engagement in collaboration with a partner organization or organizations.

Awards: Awards for development typically range from \$40,000 to \$75,000, depending on the complexity of the project, and are usually made for a period of six to twelve months.

Deadline: August 10, 2016

Contact Information: Contact the staff of NEH's Division of Public Programs at 202-606-8269 or publicpgms@neh.gov.
