

NJIT Research Newsletter

Issue: ORD-GOA-2015-21

Recent Awards

Events and Announcements

Grant Opportunities

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

Recent Research Grant and Contract Awards

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

PI: Rajesh Dave

Department: Chemical, Biological and Pharmaceutical Engineering

Grant/Contract Project Title: Improved mixing of titania in tablet film-coating formulations and quality assessment

Funding Agency: Colorcon, Inc.

Duration: 06/04/15-06/30/15

PI: MengChu Zhou

Department: Electrical and Computer Engineering

Grant/Contract Project Title: Real-time machine learning framework for unbalanced mixture of Gaussian big data

Funding Agency: CSR Zhuzhou Co. Ltd.

Duration: 06/22/15-06/21/18

PI: Michel Boufadel

Department: Civil and Environmental Engineering

Grant/Contract Project Title: Bench-Scale Treatability Study

Funding Agency: Langan Engineering

Duration: 12/18/12-06/15/17

Events and Announcements

Event: NJIT Networking Day with Federal Defense Agencies and Industry Representatives

When: July 8, 2015; 9.30 AM - 5:00 PM

Where: 112 Eberhardt

Brief Description: The networking event will feature presentations from representatives from DoD, industry and private sector. Opportunities to discuss interdisciplinary and inter-institutional collaborations will be available in the area of material science and engineering, and applications. The featured presentations include invited talks from:

Dr. Michael Robinson
Defense Threat Reduction Agency
Basic and Applied Sciences Department
Chief, Physical Sciences Office (RD-BAS)

Dr. Jacob Trevino
NanoFabrication Facility Director
The City University of New York (CUNY)
Advanced Science Research Center (ASRC)

Dr. Ezra Green
Chief Executive Officer
Spiral Energy Tech Inc.

Ms. Lisa McDonald
President
Public Service Solutions

For additional information, please contact Dr. Ravindra Nuggehalli at n.m.ravindra@njit.edu

Event: NJIT Provost High School Summer Internship Program Orientation

When: July 1, 2015; 11:00 AM - 3:00 PM

Where: Campus Center Atrium

Brief Description: There are 26 high school students working with NJIT faculty and undergraduate students on campus this summer. There will be an orientation program on July 1 with high school students, undergraduate mentors and faculty advisors starting at 11.00 AM at the Campus Center Atrium followed by pizza lunch and lab safety session given by Dr. Norman J. Van Houten, Director, Health & Environmental Safety.

Upcoming Events: Please Mark Your Calendar:

Event: Eight NJIT International Summer Research Symposium

When: July 30, 2015; 9.00 AM – 12.00 Noon

Where: Campus Center Ballroom A

Grant Opportunity Alerts

Keywords and Areas Included in Grant Opportunity Alerts:

NSF: Improving Undergraduate STEM Education (IUSE-EHR; CyberCorps(R) Scholarship for Service (SFS); Science of Science and Innovation Policy Doctoral Dissertation Research Improvement Grants (SciSIP-DDRIG); Advances in Biological Informatics (ABI); NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM); National Science Foundation Mid-Scale Innovations Program in Astronomical Sciences (MSIP)

National Institute of Health: Collaborative Opportunities for Clinical Research at NIH U01 and X02; Bioengineering Research Partnership (BRP) measurement of Chemical Substances R01; Open Design Tools for Speech Signal Processing (R01); Extracellular Vesicles and Substance Abuse (R01)

DoD/ONR/AFOSR/ARL: Defense University Research Instrumentation Program (DURIP); Multidisciplinary Research Program of the University Research Initiative

National Endowment for Humanities: Fellowship Programs at Independent Research Institutions

Grant Opportunities

National Science Foundation

Grant Program: Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR)

Agency: National Science Foundation NSF 15-585

RFP Website:

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505082&org=NSF&sel_org=NSF&from=fund

Brief Description:

A well-prepared, innovative science, technology, engineering and mathematics (STEM) workforce is crucial to the Nation's health and economy. Indeed, recent policy actions and reports have drawn attention to the opportunities and challenges inherent in increasing the number of highly qualified STEM graduates, including STEM teachers. Priorities include educating students to be leaders and innovators in emerging and rapidly changing STEM fields as well as educating a scientifically literate populace. Both of these priorities depend on the nature and quality of the undergraduate education experience. In addressing these STEM challenges and priorities, the National Science Foundation invests in evidence-based and evidence-generating approaches to understanding STEM learning; to designing, testing, and studying instruction and curricular change; to wide dissemination and implementation of best practices; and to broadening participation of individuals and institutions in STEM fields. The goals of these investments include: increasing the number and diversity of STEM students, preparing students well to participate in science for tomorrow, and improving students' STEM learning outcomes.

The Improving Undergraduate STEM Education (IUSE: EHR) program invites proposals that address immediate challenges and opportunities that are facing undergraduate STEM education,

as well as those that anticipate new structures (e.g. organizational changes, new methods for certification or credentialing, course re-conception, cyberlearning, etc.) and new functions of the undergraduate learning and teaching enterprise. The IUSE: EHR program recognizes and respects the variety of discipline-specific challenges and opportunities facing STEM faculty as they strive to incorporate results from educational research into classroom practice and work with education research colleagues and social science learning scholars to advance our understanding of effective teaching and learning.

Toward these ends the program features two tracks: (1) **Engaged Student Learning** and (2) **Institutional and Community Transformation**. Two tiers of projects exist within each track: (i) *Exploration and Design* and (ii) *Development and Implementation*.

Awards: Grants from \$300,000 to \$3 million; Total funding available: \$110 million

Letter of Intent: Contact Program Director

Deadlines: November 3, 2015

Contacts:

Biological Sciences

- Kathleen Bergin, telephone: (703)292-5171, email: kbergin@nsf.gov
- Celeste Carter, telephone: (703)292-4651, email: vccarter@nsf.gov
- Kate Denniston, telephone: (703)292-8496, email: kdennist@nsf.gov
- Terry Woodin, telephone: (703)292-4657, email: twoodin@nsf.gov

BIO: Division of Biological Infrastructure

- Charles Sullivan, telephone: (703) 292-7121, email: csulliva@nsf.gov

Chemistry

- Niki Bennett, telephone: (703)292-5128, email: nbennett@nsf.gov
- Dave Brown, telephone: (703)292-8831, email: drbrown@nsf.gov
- Hal Richtol, telephone: (703)292-4648, email: hrichtol@nsf.gov
- Dawn Rickey, telephone: (703)292-4674, email: drickey@nsf.gov

Computer Science

- Michael Erlinger, email: merlinge@nsf.gov
- Paul Tymann, telephone: (703)292-2260, ptymann@nsf.gov

Engineering

- Karen Crosby, telephone: (703)292-4629, email: kcrosby@nsf.gov
- Gul Kremer, telephone: (703)292-4640, email: gkremer@nsf.gov
- John Krupczak, telephone: (703)292-4647 email: jkrupcza@nsf.gov
- Yvette Weatherton, telephone: (703)292-5323, email: yweather@nsf.gov
- Ece Yaprak, telephone: (703)292-4618, email: eyaprak@nsf.gov

ENG: Division of Engineering Education & Centers (EEC)

- Donna M. Riley, telephone: (703) 292-7107, email: driley@nsf.gov

Geological Sciences

- Keith Sverdrup, telephone: (703)292-4653, email: ksverdru@nsf.gov

GEO: Division of Ocean Sciences (OCE)

- Elizabeth L. Rom, telephone: (703) 292-7709, email: elrom@nsf.gov

Interdisciplinary

- Myles Boylan, telephone: (703)292-4617, email: mboylan@nsf.gov
- Corby Hovis, telephone: (703)292-4625, email: chovis@nsf.gov
- Hal Richtol, telephone: (703)292-4648, email: hrichtol@nsf.gov
- Keith Sverdrup, telephone: (703)292-4653, email: ksverdru@nsf.gov
- Terry Woodin, telephone: (703)292-4657, email: twoodin@nsf.gov

Mathematics

- John Haddock, telephone: (703)292-4643, email: jhaddock@nsf.gov
- Teri Jo Murphy, telephone: (703)292-4646, email: tmurphy@nsf.gov

Physics / Astronomy

- Joyce Evans, telephone: (703)292-5098, email: jevans@nsf.gov

- Corby Hovis, telephone: (703)292-4625, email chovis@nsf.gov
- Kevin Lee, telephone: (703)292-4639, email: kelee@nsf.gov

Research/Evaluation/Assessment

- Ann Austin, telephone: (703)292-2058, email: aaustin@nsf.gov
- Myles Boylan, telephone: (703)292-4617, email: mboylan@nsf.gov
- Connie Della-Piana, telephone: (703)292-5309, email: cdellapi@nsf.gov
- Dawn Rickey, telephone: (703)292-4674, email: drickey@nsf.gov

Social Sciences and Behavioral Sciences

- Ann Austin, telephone: (703)292-2058, email: aaustin@nsf.gov
 - Myles Boylan, telephone: (703)292-4617, email: mboylan@nsf.gov
-

Grant Program: CyberCorps(R) Scholarship for Service (SFS)

Defending America's Cyberspace

Agency: National Science Foundation NSF 15-584

RFP Website: <http://www.nsf.gov/pubs/2015/nsf15584/nsf15584.htm>

Brief Description: Cyberspace has transformed the daily lives of people. The rush to embrace cyberspace, however, has exposed its fragility and vulnerabilities: corporations, agencies, national infrastructure and individuals have been victims of cyber-attacks. In December 2011, the National Science and Technology Council with the cooperation of NSF advanced a broad, coordinated Federal strategic plan for cybersecurity research and education to "change the game," examine the misuses of cyber technology, bolster education and training in cybersecurity, establish a science of cybersecurity, and transition promising cybersecurity research into practice. To achieve this strategic plan, the Nation requires an innovative and efficient cybersecurity education system that results in an unrivaled cybersecurity workforce and citizenry capable of advancing America's economic prosperity and national security in the 21st century. The Cybersecurity Enhancement Act of 2014 (Public Law 113-274) authorizes the National Science Foundation, in coordination with the Office of Personnel Management and the Department of Homeland Security, to offer a scholarship program to recruit and train the next generation of information technology professionals, industry control system security professionals and security managers.

The CyberCorps(R): Scholarship for Service (SFS) program seeks proposals that address cybersecurity education and workforce development. The *Scholarship Track* provides funding to award scholarships to students in cybersecurity. All scholarship recipients must work after graduation for a Federal, State, Local, or Tribal Government organization in a position related to cybersecurity for a period equal to the length of the scholarship. A proposing institution must provide clearly documented evidence of a strong existing academic program in cybersecurity. Such evidence can include: designation by the National Security Agency and the Department of Homeland Security as a Center of Academic Excellence in Information Assurance Education/Cyber Defense (CAE IA/CD), in Cyber Operations or in Research (CAE-R); a specialized designation by a nationally recognized organization (for example, in forensics); or equivalent evidence documenting a strong program in cybersecurity.

The *Capacity Track* seeks innovative proposals leading to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals. Proposals are encouraged that contribute to the expansion of existing educational opportunities and resources in cybersecurity and focus on efforts such as research on the teaching and learning of cybersecurity, including research on materials, methods and interventions; curricula recommendations for new courses, degree programs, and educational

pathways with plans for wide adoption nationally; teaching and learning effectiveness of cybersecurity curricular programs and courses; integration of cybersecurity topics into computer science, data science, information technology, engineering and other existing degree programs with plans for pervasive adoption; and partnerships between institutions of higher education, government, and relevant employment sectors leading to improved models for the integration of applied research experiences into cybersecurity degree programs.

Awards: Standard Awards; Anticipated funding available: \$27 million

Letter of Intent: Not Required

Deadlines:

September 14, 2015 - September 25, 2015

Scholarship Track

December 07, 2015 - December 18, 2015

Capacity Track

September 01, 2016 - September 15, 2016

Scholarship Track

December 01, 2016 - December 15, 2016

Capacity Track

Contacts:

- Victor P. Piotrowski, Program Director, telephone: (703) 292-5141, email: vpiotrow@nsf.gov
 - Dongwon Lee, Program Director, telephone: (703) 292-4679, email: dlee@nsf.gov
 - Paul Tymann, Program Director, telephone: (703) 292-2260, email: ptymann@nsf.gov
 -
-

Grant Program: Science of Science and Innovation Policy Doctoral Dissertation Research Improvement Grants (SciSIP-DDRIG)

Agency: National Science Foundation; NSF 15-583

RFP Website: <http://www.nsf.gov/pubs/2015/nsf15583/nsf15583.htm>

Brief Description: The Science of Science & Innovation Policy (SciSIP) program supports research designed to advance the scientific basis of science and innovation policy. The program funds research to develop models, analytical tools, data and metrics that can be applied in the science policy decision making process and concern the use and allocation of scarce scientific resources. For example, research proposals may develop behavioral and analytical conceptualizations, frameworks or models that have applications across the broad array of science and innovation policy challenges. Proposals may also develop methodologies to analyze science, technology and innovation data, and to usefully convey that information to a variety of audiences. Proposals that create and improve science, engineering and innovation data, including the design of new metrics and indicators, particularly proposals that demonstrate the viability of collecting and analyzing data on knowledge generation and innovation in organizations, are encouraged.

The SciSIP program welcomes proposals from individual or multi-investigator research projects, doctoral dissertation improvement awards, experimental research, and data collection and dissemination. The SciSIP program places a high priority on interdisciplinary research as well as on broadening participation and encourages proposals from junior faculty, women, other underrepresented minorities, Research Undergraduate Institutions, and EPSCoR states. The program also supports small grants that are time-critical and small grants that are high-risk and of a potentially transformative nature (see Chapter II.D.2 of the NSF Grant Proposal Guide

(http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg) for guidance on submitting Grants for Rapid Response Research (RAPID) and EARly-concept Grants for Exploratory Research (EAGER)).

The SciSIP program funds conferences and interdisciplinary research activities that strengthen research topic ideation and dissemination among the social and behavioral sciences, policy community and the larger scientific community.

The Doctoral Dissertation Research Improvement Grants funding opportunity is designed to improve the quality of dissertation research. DDRIG awards provide funds for items not normally available through the student's university such as enabling doctoral students to undertake significant data-gathering projects and to conduct field research in settings away from their campus. DDRIGs do not provide cost-of-living or other stipends or tuition. Outstanding DDRIG proposals specify how the knowledge to be created advances science and innovation policy.

Awards: Standard grants; The total direct costs for SciSIP DDRIG awards may not exceed \$20,000. Indirect costs are in addition to this maximum direct cost limitation and are subject to the awardee's current Federally negotiated indirect cost rate. Anticipated Funding Amount: \$100,000

Letter of Intent: Not Required

Deadlines: September 29, 2015 and February 09, 2016

Contacts:

Maryann P. Feldman, 995.05, telephone: (703) 292-8854, email: mfeldman@nsf.gov

Grant Program: Advances in Biological Informatics (ABI)

Agency: National Science Foundation: NSF 15-582

RFP Website: <http://www.nsf.gov/pubs/2015/nsf15582/nsf15582.htm>

Brief Description: The Advances in Biological Informatics (ABI) program seeks to encourage new approaches to the analysis and dissemination of biological knowledge for the benefit of both the scientific community and the broader public. The ABI program is especially interested in the development of informatics tools and resources that have the potential to advance- or transform- research in biology supported by the Directorate for Biological Sciences at the National Science Foundation. The ABI program accepts three major types of proposals: Innovation awards that seek to pioneer new approaches to the application of informatics to biological problems, Development awards that seek to provide robust cyberinfrastructure that will enable transformative biological research, and Sustaining awards that seek to support ongoing operations and maintenance of existing cyberinfrastructure that is critical for continued advancement of priority biological research.

Awards: Standard Grants; Anticipated funding amount: \$12-15 million

Letter of Intent: Not Required

Deadlines: September 22, 2015

Contacts:

- Anne M. Maglia, telephone: (703) 292-8470, email: dbiabi@nsf.gov
 - Peter H. McCartney, telephone: (703) 292-8470, email: dbiabi@nsf.gov
 -
-

Grant Program: NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)

Agency: National Science Foundation: NSF 15-581

RFP Website: <http://www.nsf.gov/pubs/2015/nsf15581/nsf15581.htm>

Brief Description: The National Science Foundation (NSF) Scholarships in Science, Technology, Engineering, and Mathematics program (S-STEM) addresses the need for a high quality STEM workforce in areas of national priorities. The program seeks to increase the success of low-income academically talented students with demonstrated financial need who are pursuing associate, baccalaureate, or graduate degrees in science, technology, engineering, and mathematics (STEM). The program provides awards to Institutions of Higher Education (IHEs) to fund scholarships, and to enhance and study effective curricular and co-curricular activities that support recruitment, retention, student success, and graduation in STEM. The S-STEM program encourages collaborations among different types of partners: Partnerships among different types of institutions, collaborations of STEM faculty and educational and social science researchers, or partnerships among institutions of higher education and business and industry. The program seeks: 1) to increase the number of low-income academically talented students with demonstrated financial need obtaining degrees in STEM and entering the STEM workforce or graduate study; 2) improve the education of future scientists, engineers, and technicians, with a focus on academically talented low-income students; and 3) advance understanding of the factors or curricular and co-curricular activities affecting the success of low-income students.

In this solicitation, the acronym STEM stands for science, technology, engineering, and mathematics that includes biological sciences (except medicine and other clinical fields); physical sciences (including physics, chemistry, astronomy, and materials science); mathematical sciences; computer and information sciences; geosciences; engineering; and technology areas associated with the preceding disciplines (for example, biotechnology, chemical technology, engineering technology, information technology, etc.)

The S-STEM program particularly encourages proposals from 2-year institutions, Minority Serving Institutions (MSIs), and urban public and rural institutions.

Students who are interested in scholarships should contact their Institution's Office of Financial Aid to inquire about this and other scholarship opportunities. Students who are awarded S-STEM scholarships must be U.S. citizens, permanent residents, nationals, or refugees.

Awards: Standard Grants; Anticipated funding amount: \$50-70 million. Awards for Institutional Capacity Building projects should not exceed \$650,000. Awards for Design and Development Type 1 Single Institution projects should not exceed \$1.0 million. Awards for Design and Development Type 2 Multi-Institutional Consortia projects should not exceed \$5.0 million.

Letter of Intent: Not Required

Deadlines: September 22, 2015

Contacts:

- Connie K. Della-Piana, telephone: (703) 292-5309, email: cdellapi@nsf.gov
 - Paul Tymann, telephone: (703) 292-2260, email: ptymann@nsf.gov
 - John Krupczak, telephone: (703) 292-4647, email: jkrupcza@nsf.gov
 -
-

Grant Program: National Science Foundation Mid-Scale Innovations Program in Astronomical Sciences (MSIP)

Agency: National Science Foundation: NSF 15-580

RFP Website: <http://www.nsf.gov/pubs/2015/nsf15580/nsf15580.htm>

Brief Description: A vigorous Mid-Scale Innovations Program (MSIP) was recommended by the 2010 Astronomy and Astrophysics Decadal Survey, citing "many highly promising projects for achieving diverse and timely science." As described in this solicitation, the Division of Astronomical Sciences has established a mid-scale program to support a variety of astronomical activities within a cost range up to \$30M. This program will be formally divided into four subcategories: 1) limited term, self-contained science projects; 2) longer term mid-scale facilities; 3) development investments for future mid-scale and large-scale projects; and 4) community open access capabilities. The MSIP will emphasize both strong scientific merit and a well-developed plan for student training and involvement of a diverse workforce in instrumentation, facility development, or data management.

Awards: Standard Grants; Anticipated funding amount: \$4-30 million. Minimum budget for full program duration is \$4,000,000, with the exception of open access capabilities proposals for which there is no lower limit (see Program Description). Given anticipated program budgets, no more than one proposal (and possibly none) in the upper half of the funding range will be awarded in this cycle.

Letter of Intent: Not Required; Preliminary proposal is required

Deadlines: Preliminary Proposal Due Date(s) (required) (due by 5 p.m. proposer's local time): September 16, 2015

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time): February 22, 2016

Contacts:

- Richard E. Barvainis, 1045 S, telephone: (703) 292-4891, email: rbarvai@nsf.gov
-

National Institutes of Health

Grant Program: Opportunities for Collaborative Research at the NIH Clinical Center (U01)

Pre-application: Opportunities for Collaborative Research at the NIH Clinical Center (X02)

Agency: National Institutes of Health

U01: PAR 15-287

X02: PAR-15-286

RFP Website: <http://grants.nih.gov/grants/guide/pa-files/PAR-15-287.html>

<http://grants.nih.gov/grants/guide/pa-files/PAR-15-286.html>

Brief Description: The goal of this funding opportunity announcement (FOA) is to support collaborative translational research projects aligned with NIH efforts to enhance the translation of basic biological discoveries into clinical applications that improve health. This opportunity is specifically to promote partnerships between NIH intramural investigators (e.g., those conducting research within the labs and clinics of the NIH) and extramural investigators (e.g., those conducting research in labs and clinics outside of the NIH). It will provide support for extramural investigators to take advantage of the unique research opportunities available at the [NIH Clinical Center](#) by conducting research projects in collaboration with NIH intramural investigators.

While translating basic research into clinical practice is increasingly difficult, time consuming, and expensive, translational research is crucially important in converting basic scientific discoveries into new diagnostics and therapies for patients. As such, this FOA intends to broaden and strengthen translational research collaborations between basic and clinical researchers both within and outside NIH to accelerate and enhance translational science. All teams will have at least one intramural and one extramural investigator.

This program will provide access for external researchers to the NIH Clinical Center and will leverage the diverse Clinical Center resources, expertise, and infrastructure available to test promising laboratory- and animal-based discoveries with potential implications for disease diagnosis, treatment and prevention. The NIH Clinical Center is a hospital exclusively dedicated to clinical research, thus research is the culture and research studies are routine. Its mission includes the support of clinical studies that are considered intellectually challenging and risky but with the potential of high reward with new breakthroughs in medicine. The special environment of the Clinical Center supports studies that may not be readily supported elsewhere. This may include collaborations that propose targeted increases in new patients enrolled in protocols at the Clinical Center. Examples of the special resources of the Clinical Center include:

- Large cohorts of patients, including studies of >500 rare diseases;
- A good manufacturing practices (GMP) pharmacy facility for new biological or clinical products;
- Specialized clinical phenotyping facilities (including a metabolic and other units);
- The manufacturing and use of newly designed PET ligands for imaging studies;
- The availability of blood products for special research studies;
- Collaborative opportunities on [clinical protocols](#) on unique pharmaceutical agents and/or other modes of therapy, or extraordinarily rare diseases with investigators who are known experts;
- A robust training curriculum in clinical research;
- The ability to support long-term clinical studies at minimal cost to patients and their families.
- On-campus amenities (e.g., [Family Lodge](#) and [Children's Inn](#)) to assist patients and families in supportive, home-like environments as they leave their own homes to participate in clinical research; and
- A number of other resources.

For entry to the program, projects must have a collaborating Investigator in the NIH Intramural Program. As a collaborative partner, the intramural investigator will be actively involved in the planning and execution of the research project.

Specific Areas of Interest

Awards for high quality science demonstrating the potential to result in understanding an important disease process or lead to a new therapeutic intervention will be available in topics relevant to the research interests and priorities of the participating NIH Institutes/Centers (ICs), to include:

NCI

The National Cancer Institute (NCI) invites applications in research areas relevant to the Institute's mission, which is to provide global leadership for research, training, health information dissemination, and other programs with respect to the cause, prevention, diagnosis, and treatment of cancer, rehabilitation from cancer, and the continuing care of cancer patients and the families of cancer patients.

NEI

The National Eye Institute's mission is to "conduct and support research, training, health information dissemination, and other programs with respect to blinding eye diseases, visual function, preservation of sight, and the special health problems and requirements of the blind."

NHLBI

The National Heart, Lung, and Blood Institute (NHLBI) invites applications in research areas relevant to the Institute's mission, which is to provide global leadership for a research, training, and education program to prevent and treat heart, lung, blood, and sleep disorders and diseases and enhance the health of all individuals so that they can live longer and more fulfilling lives.

Other participating institutes that are inviting applications:

National Institute of Allergy and Infectious Diseases (NIAID)

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)

National Institute of Biomedical Imaging and Bioengineering (NIBIB)

National Institute of Mental Health (NIMH)

National Institute of Neurological Disorders and Stroke (NINDS)

Please see website for more information on specific areas.

Awards: Application budgets need to reflect the actual needs of the proposed project. The maximum amount available per application is \$500,000 direct costs (exclusive of any contract/consortium F&A) per year; this amount includes Clinical Center costs and intramural investigator's costs attributed to the proposed research project. Funding up to 4 years through cooperative agreement.

Letter of Intent: Not required

Deadline: April 11, 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: Bioengineering Research Partnership (BRP): Non- or Minimally-Invasive Methods to Measure Biochemical Substances during Neonatal and Perinatal Patient Care and Research (R01)

Agency: National Institutes of Health PAR015-285

RFP Website: <http://grants.nih.gov/grants/guide/pa-files/PAR-15-285.html>

Brief Description: The primary purpose of this initiative is to stimulate basic and translational research by bioengineering and biomedical scientists in collaboration to develop advanced, non- or minimally invasive methods for rapid measurement and monitoring of biochemical substances during the care of perinatal (pregnant women and newborn infants) and pediatric patient populations. The methods should provide reliable measurements of commonly assessed biochemical substances helping maternal and neonatal patient care, including neonatal intensive care. The primary aim of this line of research is to develop approaches to reduce or eliminate pain and discomfort associated with obtaining blood or other products for clinical care and research in perinatal, neonatal, and pediatric patient populations.

The second objective of the initiative is to invite the bioengineering and biomedical scientists to develop lab-on-a-chip methods to measure biomarkers that could be applied for diagnostic and prognostic purposes during perinatal patient care and in clinical and translational research studies. The patient populations in which these can be used are pregnant and lactating women, newborn infants, and children of all ages.

The goal for a Bioengineering Research Partnership (BRP) is to drive the development and speed the adoption of promising tools and technologies that can address important biomedical research problems for which there is a scarcity of solutions. The use of engineering principles is encouraged to establish these tools and technologies as robust, well-characterized solutions that fulfill an unmet need. A synergistic partnership between the engineering, and biomedical professions is required, where the unique skills of each discipline combine to enhance our understanding of life science processes or the practice of medicine.

Awards: Actual need based.

Letter of Intent: 30 days before due date

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: Open Design Tools for Speech Signal Processing (R01)

Agency: National Institutes of Health RFA-DC-16-001

RFP Website: <http://grants.nih.gov/grants/guide/rfa-files/RFA-DC-16-001.html>

Brief Description: Open hardware and software designs that are widely shared and readily reconfigured by the end user have become increasingly popular with many engineering communities, including those engaged in biomedical research. Open designs allow users to enhance specific features and retain other aspects of a shared design without modification. Proprietary designs, by contrast, are subject to commercial interests that can restrict the level of documentation provided on its design. Commercial constraints also encourage manufacture of instrument architectures that support broadly applicable techniques as opposed to tools that can be reconfigured as needed to track an evolving set of scientific questions.

Open designs allow for rapid implementation of new features driven by the needs of a single researcher or a large user community. Study results can be published and replicated with greater clarity by reference to the original base instrument design. System enhancements can be widely shared and benefit from collaborative design and validation procedures that acknowledge contributions from all team members, innovators and users alike. The net result is that the overall pace of research can be accelerated when open design tools are used. NIDCD held a workshop in October, 2014, to discuss the potential value of a research tool that employs open design principles to provide continued enhancements in the computing power available in a portable form factor and to accelerate research and development of bold new algorithms for the field of acoustic signal processing for speech enhancement and noise reduction.

This Funding Opportunity Announcement (FOA) invites applications with plans to design algorithms and perform research with open design signal processing tools to accelerate research and translation for speech enhancement algorithms that operate in real time. This will require development of algorithms, test data, validation procedures, and study results based on use in the laboratory and in real world environments. Applications may provide initial plans for speech enhancement and noise reduction algorithms along with a roadmap for performing research that will provide results that guide further refinement of those algorithms. .

This FOA and its companion targeted to small businesses will be used to support awards that will run concurrently. Some overlap is expected for development efforts supported under different awards to different groups. This is intentional and necessary to foster a high level of activity across the research community and to encourage constructive competition between different approaches in order to identify the merits and costs for different approaches. Both FOAs will support research and development to create and disseminate libraries of open source software and signal processing frameworks that can be reconfigured by users to accelerate the pace of their individual research programs.

R01 awards will be uniquely suited to performing research that leads to publications in the peer-reviewed literature; organizing community-level efforts to use and enhance instruments through data-driven competitions; organizing special sessions at national-level scientific conferences; creation of test data and procedures; and development of standardized performance benchmarks that track key measures of algorithm function across different implementations and hardware platforms. R01 based projects will not be expected to resolve individual requests for user support, vend hardware directly to the user community, or provide other services that are typically supported by financial payments provided by the recipient of those services.

The open design approach will require a unique emphasis on outreach and dissemination activities to ensure widespread and effective use of these research tools by outside laboratories. Curation of websites with user support forums, answers to common user questions, distribute software updates, conduct user design challenges, and other forms of outreach are encouraged to engage new users and obtain continued feedback from current users. Agile software development methods are encouraged in order to gain feedback from users, build consensus among users, and identify emerging needs based on ongoing research. A “waterfall model” of sequential design steps leading to distribution of a final product near the end of the project will not be considered responsive to this funding opportunity.

Activities encouraged under this FOA include, but are not limited to, research that leads to development of:

- A comprehensive system that includes all functions widely recognized as essential features for a hearing aid, such as acoustic feedback cancellation and multiband amplitude compression. These functions should be provided as both source code and a compiled, binary image that can be run on various target platforms to support research studies of hearing aid signal processing.
- Function libraries that support areas of active research for speech signal processing, such as algorithms for various forms of speech enhancement, noise reduction, dynamic gain adjustment, frequency lowering, and other types of acoustic processing, which can be linked into the comprehensive system noted above.
- Validation procedures that demonstrate proper operation of functions in the code library as originally written, and to support future efforts to port software to new hardware, optimize specific sections of code, or develop alternative processing algorithms. Performance benchmarks will be needed to quantify important differences between alternate implementations of similar functions.
- A variety of system architectures may be studied to validate different operating modes such as very short audio latency with restricted amounts of processing vs. relatively long latencies that allow more comprehensive processing algorithms to operate. Audio latency, e.g. the time delay between presentation of a raw sound at the microphone input and the processed variant at a speaker, will require careful consideration throughout the design and development activities.

Awards: Application budgets may request average direct costs (excluding consortium Facilities and Administrative costs) of up to \$325,000 per year.

Letter of Intent: September 1, 2015

Deadline: October 1, 2015, 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.

DoD/US Army/Office OF Naval Research/Air Force Office of Scientific Research

Grant Program: DEFENSE UNIVERSITY RESEARCH INSTRUMENTATION PROGRAM (DURIP)

Agency: DoD/AFRL/ONR/AFOSR PA-AFRL-AFOSR-2015-0001

RFP Website: <http://www.grants.gov/search-grants.html?fundingCat>

Brief Description: This announcement seeks proposals to purchase instrumentation in support of research in areas of interest to the DoD, including areas of research supported by the Army Research Office (ARO), the Office of Naval Research (ONR), and the Air Force Office of Scientific Research (AFOSR), hereafter referred to collectively as “the administering agencies.” The research areas of interest to the administering agencies are available for reference on-line at the following addresses:

Army Research Office:

<http://www.aro.army.mil/> (select “Broad Agency Announcements” in the “For the Researcher” section) See the most recent ARO Core Broad Agency Announcement for Basic and Applied Scientific Research.

Office of Naval Research:

<http://www.onr.navy.mil/> (select "Contracts and Grants" and then "Broad Agency Announcements") See Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology, BAA ONRBAA15-001. After 30 Sep 2015, please use the FY15 Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology, BAA ONRBAA16-001.

Air Force Office of Scientific Research:

See BAA-AFOSR-2014-0001 Research Interests of the Air Force Office of Scientific Research available at <http://www.grants.gov/web/grants/searchgrants.html?keywords=BAA-AFOSR-2014-0001>. After BAA-AFOSR-2014-0001 closes, please use BAA-AFRL/AFOSR-2015-0001 Research Interests of the Air Force Office of Scientific Research.

For detailed information regarding technical goals, potential proposers are advised to refer to the websites cited above. They also are encouraged to contact DoD program managers listed at those sites before submitting proposals, in order to explore research areas that are of mutual interest to the proposers and DoD administering agencies. A proposal may be submitted to more than one administering agency; however, only one administering agency will fund the proposal, if selected, under the 2016 DURIP.

A central purpose of the DURIP is to provide equipment to enhance research-related education. Therefore, proposals must address the impact of the equipment on the institution’s ability to educate students through research, in disciplines important to DoD missions.

Awards: Through this DURIP competition, the DoD intends to award approximately \$52 million for FY 2016, subject to the availability of funds. These funds will be awarded via grants made by the administering agencies. Grants will be for the purchase of research equipment costing

\$50,000 or more, which typically cannot be purchased within the budgets of single-investigator awards. With few exceptions (see section III.4.b.ii) an individual award may not exceed \$1,500,000 in DoD funding. It is estimated that 180 awards will be made across the administering agencies, ranging from \$50,000 to \$1,500,000, with an approximate average award of \$290,000

Letter of Intent: Not Required

Deadline: September 25, 2015, by 4:00 PM EST.

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: 2016 Department of Defense Multidisciplinary Research Program of the University Research Initiative

Agency: Department of Defense AFOSR ONR-15-FOA-0011

RFP Website: <http://www.grants.gov/search-grants.html?fundingCat>

Brief Description: This publication constitutes a Funding Opportunity Announcement (FOA) as contemplated in Department of Defense Grant and Agreement Regulation (DoDGARs) 22.315(a). A formal Request for Proposals (RFP), solicitation, and/or additional information regarding this announcement will not be issued. The Department of Defense (DoD) Multidisciplinary University Research Initiative (MURI), one element of the University Research Initiative (URI), is sponsored by the DoD research offices. Those offices include the Office of Naval Research (ONR), the Army Research Office (ARO), and the Air Force Office of Scientific Research (AFOSR) (hereafter collectively referred to as "DoD agencies"). DOD's MURI program addresses high risk basic research and attempts to understand or achieve something that has never been done before. The program was initiated over 25 years ago and it has regularly produced significant scientific breakthroughs with far reaching consequences to the fields of science, economic growth, and revolutionary new military technologies. Key to the program's success is the close management of the MURI projects by Service program officers and their active role in providing research guidance. The DoD agencies will not issue paper copies of this announcement. The DoD agencies involved in this program reserve the right to select for award all, some or none of the proposals submitted in response to this announcement. The DoD agencies provide no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this FOA will not be returned. It is the policy of the DoD agencies to treat all proposals as sensitive competitive information and to disclose their contents only for the purposes of evaluation.

Awards will take the form of grants. Therefore, proposals submitted as a result of this announcement will fall under the purview of the Department of Defense Grant and Agreement Regulations (DoDGARs) and OMB Circulars.

The MURI program supports basic research in science and engineering at U.S. institutions of higher education (hereafter referred to as "universities") that is of potential interest to DoD. The program is focused on multidisciplinary research efforts where more than one traditional discipline interacts to provide rapid advances in scientific areas of interest to the DoD. As defined by the DoD, "basic research is systematic study directed

toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. It includes all scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs. It is farsighted high payoff research that provides the basis for technological progress.” (DoD 7000.14.R, vol. 2B, chap.5, para. 050201.B.). DoD’s basic research program invests broadly in many specific fields to ensure that it has early cognizance of new scientific knowledge.

Awards: The Total amount of funding for five years available for grants resulting from this MURI FOA is estimated to be approximately \$145 million dollars pending out-year appropriations. MURI awards are \$1M- \$2.5M per year, with the actual amount contingent on availability of funds, the specific topic, and the scope of the proposed work. Typical annual funding is in the \$1.25M to \$1.5M range.

Letter of Intent: White Paper September 8, 2015

Full Proposal Due Date: October 7, 2015, 4:00 p.m.

National Endowment for Humanities

Grant Program: Fellowship Programs at Independent Research Institutions

Agency: National Endowment for Humanities 20150813-RA

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

Brief Description: Grants for Fellowship Programs at Independent Research Institutions (FPIRI) support fellowships at institutions devoted to advanced study and research in the humanities. Recognizing that at times scholars need to work away from their homes and institutions, the FPIRI program sponsors fellowships that provide scholars with research time, a stimulating intellectual environment, and access to resources that might otherwise not be available to them.

Fellowship programs may be administered by independent centers for advanced study, libraries, and museums in the United States; American overseas research centers; and American organizations that have expertise in promoting research in foreign countries. Individual scholars apply directly to the institutions for fellowships. A list of currently funded institutions is available.

In evaluating applications consideration is given to the library holdings, archives, special collections, and other resources—either on site or nearby—that institutions make available to fellows. FPIRI grants provide funding for humanities fellowships of four to twelve months. The fellowships are held at the U.S. grantee institutions or—in the case of overseas research centers and organizations—abroad.

Award: FPIRI grants support fellowship stipends at a rate of \$4,200 per month and a portion of the costs of selecting the fellows, up to \$7,000. Indirect costs are not allowed in this program. Award Ceiling: \$400,00

Letter of Intent: Not Required

Deadline: August 13, 2015
