

NJIT Research Newsletter

Issue: ORN-2016-030

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: Treen Arinzeh (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: NASA Space Technology Research Fellowships
Funding Agency: NASA
Duration: 09/01/13-08/31/17

PI: Alexander Haimovich (PI) and Osvaldo Simeone (Co-PI)
Department: Electrical and Computer Engineering
Grant/Contract Project Title: Tactical Signals Intelligence (SIGINT) Technology Blind Source Separation
Funding Agency: Space and Naval Warfare Systems Command Pacific Booz Allen Hamilton
Duration: 06/09/16-12/14/16

PI: Abdallah Khreishah (PI)
Department: Electrical and Computer Engineering (Corrected)
Grant/Contract Project Title: NeTS: Small Collaborative Research: Coexistence of Directional Communications within 5G Networks: The Case for Visible Light Enhanced Small-Cells
Funding Agency: NSF
Duration: 10/01/16-09/30/19

PI: Alexander Kosovichev (PI)
Department: Center for Heliophysics
Grant/Contract Project Title: Integrated Global-Sun Models of Magnetic Flux Emergence and Transport
Funding Agency: NASA
Duration: 01/27/16-01/26/17

PI: Vasyl Yurchyshyn (PI)
Department: Center for Solar Terrestrial Research
Grant/Contract Project Title: High Resolution Studies of Dynamic Processes in the Sunspot Umbra: Preparing for the Era of the Daniel K. Inouye Solar Telescope
Funding Agency: NSF
Duration: 09/01/16-08/31/17

PI: Catalin Turc (PI)
Department: Mathematical Sciences
Grant/Contract Project Title: Efficient Solutions of Wave Propagation Problems in Multi-Layered, Multiple Scattering Media
Funding Agency: NSF
Duration: 09/01/16-08/31/17

PI: Wenda Cao (PI)
Department: Center for Solar Terrestrial Research
Grant/Contract Project Title: On-Site Technical Support of Global Oscillation Network Group (GONG)
Funding Agency: NSF
Duration: 07/01/16-06/30/17

In the News...

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

NIH: As part of the [Big Data to Knowledge](#) (BD2K) initiative, the NIH has [announced agency wide funding availability](#) (<http://grants.nih.gov/grants/guide/rfa-files/RFA-ES-16-010.html>) to develop or refine data and metadata standards. The lack of meta data standards will impact the ability of researchers to locate, analyze, and interact with with the data envisioned by BD2K. Such standardization was a major recommendation of the [Working Group on Data and Informatics](#) in 2012. The solicitation also seeks to establish a common repository for all software developed under BD2K. The solicitation, described as time-limited, envisions 5 awards, corresponding to a total of \$1.5 Million for fiscal year 2017 and another 5 awards, corresponding to a total of \$1.5 Million for fiscal year 2018.

DARPA: The Defense Advanced Research Projects Agency (DARPA) has announced that a solicitation will soon be issued for the [Extreme Optics and Imaging \(EXTREME\)](#) program. The initiative is based on the potential to develop optical properties from metallic and dielectric “metamaterials”, scattering surfaces and volumes, holographic structures, and diffractive elements. These would break the standard “laws” of reflection and refraction for optics.

DARPA anticipates funding three technical challenge areas that will stimulate disciplinary convergence. Two teams will be based on materials engineering concepts, and one on modeling and design. DARPA will host a proposers day September 1. More information on <http://www.darpa.mil/news-events/2016-08-15>

DRONES: The Defense Advanced Projects Agency (DARPA) wants "novel, flexible, mobile layered defense systems and component technologies" to detect, identify, track, and neutralize various threats from small unmanned aerial systems, and that could be fielded within three or four years. "The solution should be scalable and modular such that it could be deployed in multiple defense applications on a variety of platforms (vehicles and vessels)." If possible, "it should also address rocket, artillery, mortar, and other conventional threats." Learn more on <http://www.darpa.mil/news-events/2016-08-11>

Meanwhile, two directorates at the National Science Foundation - Engineering and Computer and Information Science and Engineering - intend to "support, foster, and accelerate fundamental research that advances the positive use of Unmanned Aerial Systems (UAS) to save lives, increase safety and efficiency, and enable more effective science and engineering research." NSF has in mind "fundamental investments in theoretical principles of UAS, including intelligent sensing, perception, and control; estimation; communications; collaboration and teaming; UAS adaptation and learning; human-UAS interaction; and safety, security, and privacy of UAS." More information on <https://www.nsf.gov/pubs/2016/nsf16123/nsf16123.jsp?org=NSF>

Events and Announcements

Event: Postdoctoral Research Fellowships in Biology Informational Webinar

When: Thursday, August 29, 2016 2.00 PM – 4.00 PM

Website: http://www.nsf.gov/events/event_summ.jsp?cntn_id=189442&org=NSF

Brief Description: The webinar will discuss the scope of the activity described below, guidelines for proposals to this activity, and specific requirements. The Directorate for Biological Sciences (BIO) at the National Science Foundation awards Postdoctoral Research Fellowships in Biology (PRFB) to recent recipients of the doctoral degree, in selected areas supported by BIO, and with special goals for human resource development in biology.

Fellowships are offered in three areas:

Area 1: Broadening Participation of Groups Underrepresented in Biology

Area 2: Research Using Biological Collections

Area 3: National Plant Genome Initiative Postdoctoral Research Fellowships

Access the webinar: <http://www.tvworldwide.com/events/nsf/160829/>.

Event: 2016 NRT (NSF Research Traineeship) Program Information Webinar

When: November 9, 2015 1:00 AM to December 9, 2016 11:45 PM

Website: http://www.nsf.gov/events/event_summ.jsp?cntn_id=134466&org=NSF

Brief Description: The NSF Research Traineeship program (NRT) prerecorded informational videos to provide an overview of the NRT program and describe the key similarities and differences of the two tracks. The aim of these webinars was to give potential principal investigators information on program announcement [16-503](#) by emphasizing several key features and requirements of each track.

Grant Opportunity Alerts

Keywords and Areas Included in Grant Opportunity Alerts:

Internal Faculty Seed Grant Opportunities: 2016 NJIT Faculty Seed Grants; 2016 Rutgers BHI-RUN-NJIT Pilot Grants Program in Neuroscience

NSF: National Science Foundation Research Traineeship (NRT) Program; NRT Internal Competition; Integrated Earth Systems (IES); SBE Postdoctoral Research Fellowships (SPRF); Ecology and Evolution of Infectious Diseases (EEID)

NIH: Big Data to Knowledge (BD2K) Community-Based Data and Metadata Standards Efforts (R24); BD2K Research Education Curriculum Development: Data Science Overview for Biomedical Scientists (R25); NIAID Investigator Initiated Program Project Applications (P01); NCI Outstanding Investigator Award (R35); BRAIN Initiative: Foundations of Non-Invasive Functional Human Brain Imaging and Recording - Bridging Scales and Modalities (R01)

Department of Defense/US Army/DARPA/ONR: Breast Cancer Research Program

Department of Energy: Request For Information On Potential Technical Focus Areas For Advanced Manufacturing - Related Traineeships

NASA: ROSES 2016: Astrophysics Probe Mission Concept Studies

Grant Opportunities

Internal Faculty Seed Grants

NJIT Faculty Seed Grant Awards – 2016-17

Purpose:

NJIT “2020 Vision” strategic plan targets on substantial increase in academic research and external funding with faculty and student professional development. The purpose of the NJIT Faculty Seed Grant (FSG) initiative is to promote academic research in the core and interdisciplinary areas by providing seed funding to obtain preliminary results or establish hypotheses for developing future grant proposals for submission to external funding agencies. The FSG initiative specifically seeks seed funding proposals from faculty to launch new initiatives in core and interdisciplinary emerging areas aligned with NJIT strategic tactics to develop critical research mass.

Eligibility and Type of Awards:

NJIT full-time faculty with specific research initiative to enhance the critical mass in key and emerging areas may apply to FSG program for internal funding with a budget of \$7500 per project over the FY17 ending June 30, 2017. Multidisciplinary projects with strong recommendation and justification from College/School Dean will be considered at the funding level of \$10,000 subject to availability of funds. It is expected that 15-20 FSG awards will be made this year. Funding is arranged through the Offices of Research and College/School Deans.

Recipients of FSG as lead faculty are not eligible to receive another FSG award as lead faculty within three years from the last FSG award. Projects funded by FSG are not eligible to receive another FSG as the intent of internal seed funding is to facilitate initial research towards obtaining external funds to pursue research.

Allowable Expenses include Project supplies and small equipment, travel to conferences and/or funding agencies, travel expenses for funding agency people to visit NJIT, student hourly wages. Faculty summer salary, AY release and any stipend are not permitted in the budget.

Deadlines:

CFP Announcement: May 6, 2016

FSG Proposal Due in the Office of College/School Dean: September 1, 2016

College/School Dean Recommendations to Office of Research: September 10, 2016

Announcement of Awards: September 15, 2016

Period of Award: October 1, 2016 – June 30, 2017 (no extension will be available)

Please see previous NJIT Research Newsletter Issue: ORN-2016-026:029 for more details.

2016 Rutgers BHI-RUN-NJIT Pilot Grants Program in Neuroscience

We are pleased to announce the 2016 pilot grants program in neuroscience at Rutgers University. There are two main objectives of these pilot awards program: (i) to foster **new** collaborative, interdisciplinary research in the neurosciences not only across Rutgers but also NJIT, Kessler Foundation Research Center, East Orange VA Medical Center, and (ii) support pilot experiments that will lead to sustained funding from an external agency (e.g., NIH). There are two categories of pilot grants available; each award is limited to **\$40,000** direct costs and no indirect costs or overhead are allowed. For both type of pilots, collaborative multidisciplinary efforts are encouraged. The deadline for these applications is **5 PM Tuesday, September 6th, 2016**. The two categories of awards are:

(i) Translational neuroscience awards – these must address disease mechanisms, focusing on diagnosis, tools or treatments that involve animal models, clinical studies, or basic neuroscience relevant to a future clinical application. *The clinical relevance must be clearly described in the Research Plan*. These pilots require at least 2 faculty Co-PIs with appointments from different Schools across Rutgers. Formation of teams that integrate basic and clinical themes with a vision of a future translational impact will have preference. **Six** translational pilots are available and are funded by the BHI. Four out of the six BHI-funded pilot awards will only be for applications submitted by faculty co-PIs from RU-New Brunswick and RBHS. The other two can include co-PIs from RUN and NJIT.

(ii) Basic neuroscience awards – These can include a focus on more basic neural mechanisms, or focus on translational neuroscience experiments involving an animal model or clinical studies. These Basic awards must include at least 2 Co-PIs, no more than one of which can be a faculty member at RUN (**Four** awards funded by the RUN Strategic plan fund), or at NJIT (**One** award funded by NJIT).

Please see previous NJIT Research Newsletter Issue: ORN-2016-026:029 for more details.

National Science Foundation

Grant Program: National Science Foundation Research Traineeship (NRT) Program

Agency: National Science Foundation NSF 16-503

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16503/nsf16503.htm>

Brief Description: The NSF Research Traineeship (NRT) program is designed to encourage the development and implementation of bold, new, and potentially transformative models for STEM graduate education training. The NRT program seeks proposals that ensure that graduate students in research-based master's and doctoral degree programs develop the skills, knowledge, and competencies needed to pursue a range of STEM careers. The NRT program

includes **two tracks**: the **Traineeship Track** and the **Innovations in Graduate Education (IGE) Track**.

The **Traineeship Track** is dedicated to effective training of STEM graduate students in high priority interdisciplinary research areas, through the use of a comprehensive traineeship model that is innovative, evidence-based, and aligned with changing workforce and research needs. For FY2016, there are four priority areas: (1) Data-Enabled Science and Engineering (DESE), (2) Understanding the Brain (UtB), (3) Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS), and (4) any other interdisciplinary research theme of national priority. The priority research areas for the FY2017 competition will be (1) UtB, (2) INFEWS, and (3) any other interdisciplinary research theme of national priority.

The **IGE Track** focuses on test-bed projects aimed at piloting, testing, and validating innovative and potentially transformative approaches to graduate education. IGE projects are intended to generate the knowledge required for their customization, implementation, and broader adoption. While the Traineeship Track promotes building on the current knowledge base to develop comprehensive programs to effectively train STEM graduate students, the IGE Track supports testing of novel models or activities with high potential to enrich and extend the knowledge base on effective graduate education approaches.

The NRT program addresses both workforce development, emphasizing broad participation, and institutional capacity building needs in graduate education. For both tracks, strategic collaborations with the private sector, non-governmental organizations (NGOs), government agencies, national laboratories, field stations, teaching and learning centers, informal science centers, and academic partners are encouraged.

Awards: Standard Grants; **Anticipated Funding Amount:** \$51,680,000.

Letter of Intent: December 09, 2016

Full Proposal Submission Due Date: February 7, 2017

Limit on Number of Proposals per Organization: 4

Limit on Number of Proposals per Organization: 2 for the Traineeship Track, 2 for the Innovations in Graduate Education Track

An eligible organization may participate in two Traineeship Track proposals and two Innovations in Graduate Education Track proposals per competition. **Participation includes serving as a lead organization on a non-collaborative proposal or as a lead organization, non-lead organization, or subawardee on a collaborative proposal.** Organizations participating solely as evaluators on projects are excluded from this limitation.

Limit on Number of Proposals per PI or Co-PI: 1

An individual may serve as Lead Principal Investigator (PI) or Co-PI on only one proposal submitted to the NRT program per annual competition

Contacts:

- Claire Hemingway, telephone: (703) 292-7135, email: nrt@nsf.gov
- Richard Tankersley, telephone: (703) 292-5199, email: nrt@nsf.gov

NJIT Internal Competition for Selection of Proposals

Internal Competition Deadline: Submit an internal Letter of Intent following the NSF LOI instructions (copied below) to your college/school dean by October 7, 2016.

Dean's recommendations with the internal Letter of Intent (not more than 2 for the Traineeship Track and 2 for the Innovation in Graduation Track) should be submitted to the Office of Research for Institutional Reviews and selection by October 17, 2016. PIs and deans will be notified for selected LOIs by October 24.

Instruction of Preparation of Letters of Intent (required):

A Letter of Intent (LOI) submitted by the lead institution only is required for proposal submissions planned for either NRT track. Limits on the number of proposals submitted per institution and per PI/coPI also apply to the Letters of Intent. Letters of Intent are not reviewed but are used to gauge review requirements. They are not used as pre-approval mechanisms for the submission of proposals, and no feedback is provided to the submitters.

Submit a one-page LOI through FastLane with the following information:

- The name and departmental affiliation of the Principal Investigator (PI);
- The name(s) and departmental affiliation(s) of the Co-PI(s) and others composing the 10 Core Participants;
- The names(s) of any other participating institutions or organizations;
- Project Title: For Traineeship Track proposals, the title must begin with “NRT-DESE:”, “NRT-UtB:”, “NRT-INFEWS:”, for projects targeting the Data-Enabled Science and Engineering, Understanding the Brain, and Nexus of Food, Energy, and Water Systems research areas, respectively. Titles for projects addressing another interdisciplinary theme must begin with “NRT:”. For Innovations of Graduate Education Track proposals, the title must begin with “NRT-IGE:”.
- Project Synopsis (2500 text-based characters): For Traineeship Track proposals, provide a brief summary of the vision and goals of the proposed training program, including a brief description of the interdisciplinary research theme, the main training elements, the integration of the research and training, and the need for the program; for IGE Track proposals, provide a brief description of the graduate education model(s), approach(es), or activities to be piloted and tested, including a brief description of the disciplinary or interdisciplinary needs and/or challenges addressed.

Keywords: For Traineeship Track proposals, include 4-5 keywords that specify the disciplines and/or themes targeted; for IGE Track proposals, include 4-5 keywords that describe the model, approach, and/or activities to be piloted and tested.

Grant Program: Integrated Earth Systems (IES)

Agency: National Science Foundation NSF 16-589

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16589/nsf16589.htm>

Brief Description: The Earth consists of a variety of complex systems that are variable over space and time, and respond to a wide range of perturbations. The goal of the Integrated Earth Systems (IES) program is to investigate the interplay among the continental, terrestrial, and interior systems of the planet. The program provides an opportunity for collaborative, multidisciplinary research into the operation, dynamics, and complexity of Earth systems that encompass the core of the Earth through the surface. Innovative projects that explore new research directions beyond those typically considered by core programs of the Division of Earth Sciences (EAR) are encouraged. Investigations may include all or part of the continental, terrestrial and deep Earth at all temporal and spatial scales. IES will support topics that include (but are not limited to) continental systems; terrestrial or surficial Earth systems including physical, chemical, and biotic dimensions; linkages among tectonics, climate, and landscape evolution; the coupling of the Earth's climate, depositional and biotic systems; and global cycles that involve core and mantle processes.

Awards: Standard Grants. Anticipated funding amount: \$7,500,000 to \$9,500,000 pending availability of funds.

Letter of Intent: Not Required

Full Proposal Submission Due Date: November 14, 2016

Contacts: Leonard E. Johnson, Program Director, telephone: (703) 292-4749, fax: 703-292-9025, email: lejohnso@nsf.gov

- Richard F. Yuretich, Program Director, telephone: (703) 292-4744, email: ryuretic@nsf.gov
 - Dennis Geist, Program Director, telephone: (703) 292-4361, email: dgeist@nsf.gov
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Grant Program: SBE Postdoctoral Research Fellowships (SPRF)

Agency: National Science Foundation NSF 16-590

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16590/nsf16590.htm>

Brief Description: The Directorate for Social, Behavioral and Economic Sciences (SBE) offers Postdoctoral Research Fellowships to encourage independence early in the Fellow's career through supporting his or her research and training goals. The research and training plan of each fellowship must address important scientific questions within the scope of the SBE Directorate and the specific guidelines in this fellowship solicitation. The SPRF program offers two tracks: (I) Fundamental Research in the SBE Sciences (SPRF-FR) and (II) Broadening Participation in the SBE Sciences (SPRF-BP). See the full text of the solicitation for a detailed description of these tracks.

Awards: Fellowships. **Anticipated Funding Amount:** \$3,000,000

Letter of Intent: Not Required

Full Proposal Submission Due Date: November 14, 2016

Contacts:

- Josie S. Welkom-Actg Pgm Officer, telephone: (703) 292-7376, email: jwelkom@nsf.gov
 - Lisa M. Jackson-Pgm Specialist, telephone: (703) 292-7882, email: lmjackso@nsf.gov
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Grant Program: Ecology and Evolution of Infectious Diseases (EEID)

Agency: National Science Foundation NSF 16-592

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16592/nsf16592.htm>

Brief Description: The Ecology and Evolution of Infectious Diseases program supports research on the ecological, evolutionary, and socio-ecological principles and processes that influence the transmission dynamics of infectious diseases. The central theme of submitted projects must be quantitative or computational understanding of pathogen transmission dynamics. The intent is discovery of principles of infectious disease transmission and testing mathematical or computational models that elucidate infectious disease systems. Projects should be broad, interdisciplinary efforts that go beyond the scope of typical studies. They should focus on the determinants and interactions of transmission among humans, non-human animals, and/or plants. This includes, for example, the spread of pathogens; the influence of environmental factors such as climate; the population dynamics and genetics of reservoir species or hosts; the cultural, social, behavioral, and economic dimensions of disease transmission. Research may be on zoonotic, environmentally-borne, vector-borne, or enteric diseases of either terrestrial or freshwater systems and organisms, including diseases of animals and plants, at any scale from specific pathogens to inclusive environmental systems. Proposals for research on disease systems of public health concern to developing countries are strongly encouraged, as are disease systems of concern in agricultural systems. Investigators are encouraged to develop the appropriate multidisciplinary team, including for example, modelers, bioinformaticians, genomics researchers, social scientists, economists, epidemiologists, entomologists, parasitologists, microbiologists, bacteriologists, virologists, pathologists or

veterinarians, with the goal of integrating knowledge across disciplines to enhance our ability to predict and control infectious diseases.

Awards: Standard Grants. **Anticipated Funding Amount:** \$13,500,000

Letter of Intent: Not Required

Full Proposal Submission Due Date: November 16, 2016

Contacts:

- Samuel M. Scheiner, Program Director, BIO/NSF, telephone: (703) 292-7175, email: sscheine@nsf.gov
 - Christine Jessup, Program Director, NIH/FIC, telephone: (301) 496-1653, fax: (301) 402-0779, email: christine.jessup@nih.gov
 - Peter Johnson, National Program Leader, USDA/NIFA, telephone: (202) 401-1896, email: pjohnson@nifa.usda.gov
 - Deborah Winslow, Program Director, SBE/NSF, telephone: (703) 292-7315, email: dwinslow@nsf.gov
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National Institutes of Health

Grant Program: Big Data to Knowledge (BD2K) Community-Based Data and Metadata Standards Efforts (R24)

Agency: National Institutes of Health RFA-ES-16-010

RFP Website: <http://grants.nih.gov/grants/guide/rfa-files/RFA-ES-16-010.html>

Brief Description: This overall program is intended to provide time-limited and catalytic support for a diverse array of standards development activities that address unmet needs. It is expected that the need to develop a standard de novo will be extremely rare and that most projects will adapt/refine/extend existing standard(s). The support provided through this FOA is not intended to replace existing standards resources and infrastructure available to facilitate standards efforts over the lifecycle. Rather, projects funded through this FOA should capitalize on existing public and/or private resources and identify organizational partners and support mechanisms that may be available to enable continued development and maintenance of the standard. The project will need to have in place a plan for evaluating the intermediate and longer-term product(s) of the standards development activities and the short and long-term impact of the standard.

This FOA supports both short-term and longer-term projects. For example, a high-impact project to extend an existing terminology in a particular subdomain to adapt it for use in a new community might be accomplished in four months with a relatively modest level of effort. Similarly, establishment or refinement of technical requirements or use-cases might be accomplished in 6 months. On the other hand, a project to implement, deploy, test and get community feedback/validation for a tool to facilitate mapping research data elements for use in aggregating data from multiple studies might be considerably larger and require more than 1 year's funding.

Awards: Application budgets are limited to \$250,000 direct costs per year and must reflect the actual cost of the proposed project for up to three year.

Letter of Intent: 30 days before the application due date.

Deadline: October 19, 2016; October 19, 2017, 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: BD2K Research Education Curriculum Development: Data Science Overview for Biomedical Scientists (R25)

Agency: National Institutes of Health RFA-ES-16-011

RFP Website: <http://grants.nih.gov/grants/guide/rfa-files/RFA-ES-16-011.html>

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

The over-arching goal of this NIH Big Data to Knowledge R25 program is to support educational activities that complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs. To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on:

- **Curriculum and Methods Development:** The development of coursework in Big Data Science for the training of predoctoral level students in the biomedical sciences; the integration of data science into biomedical curricula to improve biomedical, behavioral or clinical science education; working in tandem with other awardees to formulate core competencies; and sharing the instructional material and educational tools developed with others who wish to include this instruction in their curriculum. Curricular materials are expected to reflect the FAIR principles.

Training for the BD2K Initiative

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

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

- For biomedical scientists to become conversant in data science and learn to utilize existing tools, courses and open educational resources are available.
- To address the growing need for specialists in biomedical data science, predoctoral students and early career scientists are supported.

- To foster the development of new interdisciplinary teams consisting of biomedical scientists and data scientists, BD2K is collaborating with the National Science Foundation.
- To train a diverse workforce, under-resourced institutions serving diverse populations are developing data science curriculum and providing short-term research experiences for students and faculty.

To ensure that BD2K's training and education efforts have maximum impact in generating knowledge, educational resources should be findable, accessible, interoperable, and reusable (FAIR).

Awards: Applications that request costs for curriculum development may request up to \$100,000 per year direct costs; Applications proposing to serve as the lead to coordinate the program may request an additional \$50,000, for a total of \$150,000 per year direct costs.

Letter of Intent: Not required.

Deadline: December 7, 2016; December 1, 2017, 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: NIAID Investigator Initiated Program Project Applications (P01)

Agency: National Institutes of Health PAR-16-413

RFP Website: <http://grants.nih.gov/grants/guide/pa-files/PAR-16-413.html>

Brief Description: This Funding Opportunity Announcement (FOA) invites Program Project applications (P01) that address the mission of NIAID as outlined in the Background section above. Investigators are encouraged to visit the [NIAID website](#) for additional information about the research mission and high-priority research areas of the NIAID.

The purpose of Program Project (P01) grants is to support integrated, multi-project research programs that have a well-defined, central research focus or objective. The P01 is a confederation of interrelated research projects, each capable of standing on its own scientific merit but complementing one another. The P01 application must include a minimum of two individual research projects that contribute to the program objective. Each individual research project should reflect a distinct, separate, scientifically meritorious research effort led by an independent investigator, the Project Leader. In addition, the individual projects should be clearly interrelated and synergistic so that the research ideas, efforts, and outcomes of the program as a whole will offer a distinct advantage over pursuing the individual projects separately.

Clinical trials are NOT allowed and will not be reviewed or funded.

In addition to individual research projects, applicants may propose one or more scientific cores if needed for the proposed research. Each shared resource core must be utilized by two or more projects within the program. An administrative core is required and scientific cores are optional for this announcement. For renewals and resubmissions, new cores may be proposed and/or existing cores may be augmented or dropped to support the proposed research.

Applicants are referred to NIAID's tutorial on [Preparing Multiproject Research Applications](#) for additional guidance on NIAID P01s.

Synergy in Multi-project Applications

This FOA supports multi-project applications. In the context of a multi-project application, synergy entails enhancement of scientific knowledge, ideas, and outcomes obtained through the cooperative interactions of the individual projects and cores. The proposed merger

of complementary skills, perspectives, and resources has the potential to produce outcomes greater than would otherwise be achieved. The outcomes resulting from conducting the proposed research as a Program will exceed the outcomes from conducting separate research activities as a single project application. Examples of synergy include, but are not limited to: sharing data, samples, reagents, pathogens, human subject population(s), technologies, research approaches, data management/analytical tools, and model organisms, which may impact the direction of science and research outcomes in the Program.

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

Letter of Intent: Not Required

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

The first application due date for this FOA is **September 25, 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: NCI Outstanding Investigator Award (R35)

Agency: National Institutes of Health PAR-16-411

RFP Website: <http://grants.nih.gov/grants/guide/pa-files/PAR-16-411.html>

Brief Description: The purpose of the National Cancer Institute (NCI) Outstanding Investigator Award is to provide long-term support and increased flexibility for investigators with outstanding records of research productivity to continue or to embark upon a research program of unusual potential in cancer. Candidates for the OIA must be nominated by their applicant organization. Special features of the OIA include 7-year project periods; the expectation that the OIA PD/PI commit at least 6 calendar months effort to the OIA; the expectation of clear and substantial Institutional commitment to the PD/PI, for example, providing 20% of salary support; and that PD/PIs will be expected to renegotiate their time and effort on all other grant support, including NIH grants, in order to accommodate the OIA level of effort. It is expected that the OIA will replace current NCI funding on individual research grants.

Awards: Awards will be for \$600,000 direct costs per year, plus applicable Facilities and Administrative (F&A) costs to be determined at the time of award.

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

Deadline: November, 22, 2016, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on this 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: BRAIN Initiative: Foundations of Non-Invasive Functional Human Brain Imaging and Recording - Bridging Scales and Modalities (R01)

Agency: National Institutes of Health RFA-MH-17-235

RFP Website: <http://grants.nih.gov/grants/guide/rfa-files/RFA-MH-17-235.html>

Brief Description: As stated in the BRAIN 2025 report, "The last twenty years have seen explosive growth in the development and use of noninvasive brain mapping methods, predominantly MRI, complemented by MEG and electroencephalography (EEG), to investigate the human brain under normal and pathological conditions, and across the human lifespan." Human neuroimaging methods and technology have made significant advances in elucidating

the macroscopic structural and functional organization of the human brain. At the same time animal research, aided by advances in optical imaging and other techniques, has allowed detailed study of the brain anatomy and physiology at the microscopic scale of brain function. The overarching research objective of this FOA is to advance our ability to accurately and precisely infer these microscopic details of underlying anatomy and physiology in the human brain from the more limited data available from noninvasive functional brain mapping methods. At present, relatively little is understood of the fundamental relationships between brain imaging signals at macroscopic levels and the underlying circuits and cellular activity at more fine-grained scales. What is needed is to integrate the information from the signals collected using non-invasive imaging and recording techniques with studies aimed at better understanding the cellular- and circuit-bases of these signals. Such integrative, multidisciplinary efforts would revolutionize our understanding of the biological and bioinformatic content of data collected from non-invasive human brain imaging and functional evaluation techniques. This knowledge could lead to transformative breakthroughs in understanding dynamic functions of the human brain under both normal and pathological conditions.

Thus, the goal of this FOA is to improve our understanding of the dynamic function of the human brain using non-invasive imaging techniques that are suited to the general human population. Research proposed in response to this FOA should focus on determining what the signals detected with non-invasive neuroimaging and functional evaluation techniques reveal about the underlying neural circuitry, with an emphasis on determining how the acquired signal at one level informs our understanding of activity at other levels. A key to achieving these goals will be bridging microscopic and macroscopic scales across temporal and/or spatial domains. This approach will yield a deeper understanding of how electrical and chemical activity in different populations of neurons and glia are represented in macroscopic-level measurements of brain structure and function. The knowledge gained could potentially enable non-invasive measurements of circuit and network interactions at multiple spatial and temporal scales.

Awards: Application budgets are limited to \$700,000 in direct costs (including consortium F&A) in any project year, and need to reflect the actual needs of the proposed project.

Letter of Intent: October 23, 2016.

Deadline: November, 23, 2016, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on this dates. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date

Department of Defense/US Army/DARPA/ONR

Grant Program: Breast Cancer Research Program

**Agency: Department of Defense Congressionally Directed Medical Research Programs
W81XWH-16-BCRP-BREAKTHROUGH2-FL12**

Website: http://cdmrp.army.mil/funding/pa/16bcrpba12_pa.pdf

Brief Description: Considering the current breast cancer landscape and the BCRP's vision to end breast cancer, each FY16 BCRP Breakthrough Award application must address at least one of the following overarching challenges. Alternatively, with adequate justification, applications may identify and address another overarching challenge related to the breast cancer landscape. Justification must be provided in the application.

- Prevent breast cancer (primary prevention)
- Identify determinants of breast cancer initiation, risk, or susceptibility
- Distinguish deadly from indolent breast cancers

- Conquer the problems of overdiagnosis and overtreatment
 - Identify what drives breast cancer growth; determine how to stop it
 - Identify why some breast cancers become metastatic
 - Determine why/how breast cancer cells lie dormant for years and then re-emerge (recurrence); determine how to prevent recurrence
 - Revolutionize treatment regimens by replacing them with ones that are more effective and less toxic
 - Eliminate the mortality associated with metastatic breast cancer
- Proposal Submission Deadline: Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), November 3, 2016**
- **Application Submission Deadline: 11:59 p.m. ET, November 17, 2016**
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Department of Energy

Grant Program: Request For Information On Potential Technical Focus Areas For Advanced Manufacturing - Related Traineeships

Agency: Department of Energy DE-FOA-0001635

Website: <https://eere-exchange.energy.gov/#Foaid701f4169-15f7-46ae-85af-99acb2ab9c0c>

Brief Description: The Department of Energy (DOE) funds university-led traineeship programs that strategically address workforce training needs in key technical focus areas. The following objectives guide DOE's Office of Energy Efficiency and Renewable Energy (EERE) Advanced Manufacturing Office's (AMO) traineeship efforts:

- Advance the DOE mission relative to advanced manufacturing – DOE funded Traineeship Programs are designed and implemented to advance specific Science, Technology, Engineering and Math (STEM) workforce competencies required for the DOE's unique mission to ensure America's security and prosperity by addressing its science, energy, and environmental challenges.
- Address priority STEM workforce needs and identified gaps – DOE funded Traineeship Programs focus on advancing those critical STEM disciplines and competencies specifically relevant to the EERE and AMO missions where other U.S. Government or academic workforce development programs either do not exist or where DOE-relevant applications are not being leveraged to support specific DOE mission responsibilities.

In July 2015, EERE released a Funding Opportunity Announcement (FOA) to address emerging needs in graduate training enabling preparedness for the field of advanced Power Electronics Engineering careers beyond those in academia. As a result, EERE made two competitively-selected awards supporting five-year graduate-level programs in Power Electronics Engineering, leveraging existing DOE assets including the wide band gap National Network for Manufacturing Innovation (NNMI) Institute, PowerAmerica.

The purpose of this Request for Information (RFI) is to gather from industry, academia, research laboratories, government agencies, and other stakeholders on issues related to future EERE-funded and AMO-funded graduate-level Traineeships. This RFI is not a FOA; therefore, DOE is not accepting applications at this time. All responses to this RFI must be provided as an attachment (in Microsoft Word format) to an e-mail message addressed to AMOTraineeship@ee.doe.gov.

Deadline: Responses must be received no later than 5:00pm (ET) on October 14th, 2016.

Contact Information:

- EERE-ExchangeSupport@hq.doe.gov
- EERE Exchange support.

- AMOTraineeship@ee.doe.gov

Responses to this Request for Information

NASA

Grant Program: ROSES 2016: Astrophysics Probe Mission Concept Studies

Agency: NASA NNH16ZDA001N-APROBES

RFP Website:

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={96D40385-EB0D-6F64-9195-CE8B5555F9BD}&path=init>

Brief Description: NASA has started preparations for the 2020 Astronomy and Astrophysics Decadal Survey (<http://science.nasa.gov/astrophysics/2020-decadal-survey-planning/>). One of the tasks of the 2020 Decadal Survey Committee will be to recommend a portfolio of astrophysics missions. The Decadal Survey Committee may choose to recommend a portfolio of missions containing a mix of prioritized large- and medium-size mission concepts, or even a program of competed mediumsize missions. NASA and the community are interested in providing appropriate input to the 2020 Decadal Survey regarding medium-size mission concepts, also referred to as Astrophysics Probe concepts. To this end, NASA is soliciting proposals to conduct mission concept studies for Astrophysics Probe missions. Following peer review of the proposed mission concept studies, NASA will select a small number of proposals for 1.5 year (18 month) funded studies. Results of the selected studies will be provided by NASA as input to the 2020 Decadal Survey. Astrophysics Probes are envisioned to have a total lifecycle (NASA Phases A through E) cost between that of a MIDEX mission (~\$400M) and ~\$1B. Proposals for concept studies may envision missions that include contributions from other agencies (national or international), industry, and universities. Should NASA choose to develop a mission that flows from any selected mission concept study, the responsibility for that mission will be assigned by NASA; there is no expectation that the mission concept study team or participating organizations will necessarily participate in the eventual mission development.

Award: Various

Proposal Deadline:

APROBES16 NOIs Due Sep 16, 2016

APROBES16 Proposals Due Nov 15, 2016
