NJIT Research Newsletter

Issue: ORN-2016-012

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: Michael Boufadel (PI)
Department: Center for Natural Resource Development and Protection
Grant/Contract Project Title: Modeling diluted bitumen
Funding Agency: Dept. of Fisheries, Canada
Duration: 09/26/14-03/31/17

PI: Antje Ihlefeld (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: The role of sound deprivation on central processing of masking
Funding Agency: NIH
Duration: 09/01/14-08/31/17

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

PI: Tara Alavrez (PI)
Department: Biomedical Engineering
Grant/Contract Project Title: Analysis of Multiple Sclerosis Eye Movement Data
Funding Agency: Kessler Foundation
Duration: 03/07/16-03/07/17

PI: Chang Liu (PI), Na Deng (Co-PI), Haimin Wang (Co-PI)
Department: Center for Solar-Terrestrial Research
Grant/Contract Project Title: Exploring the Physical Relationship Among Photospheric Magnetic Field Changes, Sunspot Motions, and Sunquakes During Solar Eruptions
Funding Agency: NASA
Duration: 02/01/13-01/31/17

PI: Edgardo Farinas (PI)
Department: Chemistry and Environmental Sciences
Grant/Contract Project Title: Enzyme display for alkane oxidation
Funding Agency: NIH
Duration: 03/01/16-02/28/17

PI: Timothy Franklin (PI), William Marshall (Co-PI), Donald Sebastian (Co-PI)
Department: NJIT
Grant/Contract Project Title: Academy of Applied Science (with funding supplied by the Army Research Office)
Funding Agency: NJ Market Shift Supplement
Duration: 07/01/14-06/31/16

Events and Announcements

Event: NSF Webinar: Google-tech to CMU-SCS-tech: Strategy around Data, Augmented Humans and Autonomy
When: March 31, 2016: 2.00 PM – 3.00 PM
Where: http://www.nsf.gov/events/event_summ.jsp?cntn_id=137967&org=NSF
Abstract: In this talk I will give contrasts and personal experiences of some of the big developments in computer science from the perspective of someone crossing over from industry to academia. I will talk about roadmaps for AI-based consumer and advice products in the commercial world and contrast with some of the potentially viable roadmaps of US national interest. As part of that I will touch on developing strategy at the School of Computer Science (SCS) for entity stores (aka knowledge graphs), question answering, augmented humans and autonomy.
Speaker Bio: Andrew W. Moore. PhD, a distinguished computer scientist with expertise in machine learning and robotics, became dean of the Carnegie Mellon University School of Computer Science in August 2014. He had previously served as a professor of computer science and robotics before taking a leave of absence to become founding director of Google's Pittsburgh engineering office in 2006. Moore's research interests broadly encompass the field of "big data"--applying statistical methods and mathematical formulas to massive quantities of information, ranging from Web searches to astronomy to medical records, in order to identify patterns and extract meaning from that information. His past research has also included improving the ability of robots and other automated systems to sense the world around them and respond appropriately.
Register: Please register at
https://nsf.webex.com/nsf/j.php?RGID=r19587baac32f6ff10ff01d9b98ada30a
by 11:59pm EST on Wednesday, March 30, 2016.

Event: IEEE Spectrum Webinar: Charged Particle Tracing Simulations
When: April 7, 2016 3.00 PM-4.00 PM
Where: http://spectrum.ieee.org/webinar/charged-particle-tracing-simulations
Brief Description: The Particle Tracing Module extends the functionality of the COMSOL Multiphysics environment for computing the trajectories of ions, electrons, and neutral species in external fields. Particles can be subjected to electric, magnetic, and collisional forces, including bidirectional particle-field interactions. The particles can interact with solids, rarefied background gases, and other particles. This webinar introduces particle tracing for applications such as etching, mass spectrometry, ion optics, and beam physics. The webinar includes a demonstration and will end with a Q&A session.
About the Speakers: Jennifer Segui, Sr. Technical Marketing Engineer, COMSOL
As a Sr. Technical Marketing Engineer at COMSOL, Jennifer Segui writes and produces demos, presentations, articles, and documentation showcasing the capabilities available across the entire COMSOL® Product Suite. She is also the Program co-Chair for the COMSOL Conference in Boston. Jennifer has degrees in Medical Physics and Computer Engineering.

Christopher Boucher, Technical Product Manager, COMSOL Boucher is the Technical Product Manager for the Particle Tracing Module and Ray Optics Module. He received his BS degree in Aerospace Engineering and Physics from Worcester Polytechnic Institute (WPI) before joining COMSOL in 2012.
Register at: http://spectrum.ieee.org/webinar/charged-particle-tracing-simulations

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Event: IEEE Smart Grid Webinar
When: April 28, 2016 1.00 PM-2.00 PM
Where: http://smartgrid.ieee.org/grid-modernization-and-der-deployment-lessons-learned-and-future-directions
Brief Description: Regulatory initiatives to decarbonize our ecosystem have led to the growth of Distributed Energy Resources (DER), which include Solar-PV, Energy Storage, Demand Response and Electric Vehicles. DER growth has also been led by new innovative technologies. Moreover, recent grid restoration experiences from major storms have shown the potential of DER to provide emergency electricity service. DER is also revolutionizing how consumers value electricity service and reliability. DER provides new opportunities to optimize real-time transmission and distribution grid operations. This webinar will present the challenges and opportunities of DER for real-time grid operations, and will share lessons learned from recent Advanced Distribution Management Solutions (ADMS) and Distributed Energy Resource Management Solutions (DERMS) deployment projects in integrating, scheduling and dispatching of DER.
About the Speakers: Dr. Avnaesh Jayantilal is Director of Advanced Distribution Management Systems (ADMS) in **GE Grid Software Solutions** business assisting electric utilities in enhancing grid operations and reliability, business process optimization and ultimately customer satisfaction. Avnaesh joined GE (then Alstom) in 1999, and prior to his current role, he held positions in Product Marketing, Business Development, Project Engineering and Software Development. Dr. Jayantilal supports and participates in the deployment of Community Microgrids for rural electrification in the developing world with IEEE Smart Village. He is a Senior Member of the IEEE Power and Energy Society (PES), in which he chairs the IEEE PES System Operations and Control Centre Subcommittee.
Register at: http://smartgrid.ieee.org/grid-modernization-and-der-deployment-lessons-learned-and-future-directions

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Event: NIH VideoCasting and Podcasting
2016 Alzheimer's Disease-Related Dementia (ADRD) Summit (Day 1 and Day 2)
When: March 29, 2016 8.30 AM (Day 1); March 30, 2016 8.30 AM (Day 2)
Where: https://videocast.nih.gov/summary.asp?live=18053&bhcp=1
Brief Description: The 2016 Alzheimer's Disease-Related Dementias (ADRD) Summit will complete Action Number 1.A.8 of the National Plan to Address Alzheimer's Disease (2015 update). The goal of the Summit, as indicated in the action description of the National Plan, is to "regularly convene an ADRD Summit to review the progress on ADRD research recommendations and refine and add new recommendations as appropriate based on recent scientific discoveries.

For more information go to https://meetings.ninds.nih.gov/?ID=11958

Grant Opportunity Alerts

Keywords and Areas Included in Grant Opportunity Alerts**:**

NSF: Small Business Innovation Research Program Phase I (SBIR); Small Business Technology Transfer Program Phase I (STTR); US Ignite: Networking Research and Application Prototypes Leading to Smart & Connected Communities
NIH: Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (Parent T32); Ruth L. Kirschstein National Research Service Award (NRSA) Short-Term Institutional Research Training Grant (Parent T35); High Impact, Interdisciplinary Science in NIDDK Research Areas (RC2)
Department of Defense/US Army/DARPA/ONR: Update: Defense University Research Instrumentation Program (DURIP)
Department of Energy: Addressing Risk and Uncertainty in the Future Power System
NASA: Research Opportunities in Space Biology (ROSBio) – 2016; Research Opportunities in Space and Earth Sciences 2016 (ROSES–2016) Astrophysics Data Analysis

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Grant Opportunities

National Science Foundation

Grant Program: Small Business Innovation Research Program Phase I (SBIR)
Agency: National Science Foundation NSF 16-554
RFP Website: http://www.nsf.gov/pubs/2016/nsf16554/nsf16554.htm
Brief Description: The Small Business Innovation Research (SBIR) Program is intended to stimulate technological innovation in the private sector by strengthening the role of small business concerns in meeting Federal research and development needs, increasing the commercial application of federally supported research results, and fostering and encouraging participation by socially and economically disadvantaged and women-owned small businesses.
The SBIR/STTR program solicits proposals from the small business sector consistent with NSF's mission. The program is governed by Public Law 112-81 (SBIR/STTR Reauthorization Act of 2011). SBIR/STTR policy is provided by the Small Business Administration (SBA) through the SBA Policy Directive. A main purpose of the legislation is to stimulate technological innovation and increase private sector commercialization. The NSF SBIR/STTR program is therefore in a

unique position to meet both the goals of NSF and the purpose of the SBIR/STTR legislation by transforming scientific discovery into both social and economic benefit, and by emphasizing private sector commercialization.

Accordingly, NSF has formulated broad solicitation topics that conform to the high-technology investment sector's interests. The topics are detailed on the SBIR/STTR website.

Note: The submission of the same project idea to both this SBIR Phase I solicitation and the concurrent STTR Phase I solicitation is strongly discouraged.

Awards: Anticipated Funding Amount: $45,000,000

Letter of Intent: Not Required

Full Proposal Deadlines: June 16, 2016

Contacts:

- Peter Atherton, Information Technologies (IT), telephone: (703) 292-8772, email: patherto@nsf.gov
- Prakash Balan, Chemical and Environmental Technologies (CT), telephone: (703) 292-5341, email: pbalan@nsf.gov
- Steven Konsek, Semiconductors (S) and Photonic (PH) Devices and Materials, and Internet of Things (I), telephone: (703) 292-7021, email: skonsek@nsf.gov
- Glenn H. Larsen, Educational Technologies and Applications (EA), telephone: (703) 292-4607, email: glarsen@nsf.gov
- Rajesh Mehta, Advanced Manufacturing and Nanotechnology (MN), telephone: (703) 292-2174, email: rmehta@nsf.gov
- Muralidharan S. Nair, Electronic Hardware, Robotics and Wireless Technologies (EW), telephone: (703) 292-7059, email: mnair@nsf.gov
- Ben Schrag, Advanced Materials and Instrumentation (MI), telephone: (703) 292-8323, email: bschrag@nsf.gov
- Ruth M. Shuman, Biological Technologies (BT), telephone: (703) 292-2160, email: rshuman@nsf.gov
- Jesus V. Soriano, Smart Health (SH) and Biomedical (BM) Technologies, telephone: (703) 292-7795, email: jsoriano@nsf.gov

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Grant Program: Small Business Technology Transfer Program Phase I (STTR)

Agency: National Science Foundation NSF 16-555

RFP Website: http://www.nsf.gov/pubs/2016/nsf16555/nsf16555.htm

Brief Description: NSF's STTR program provides non-dilutive funds for early-stage research and development (R&D) at small businesses. This R&D should be based on innovative, transformational technology with potential for substantial commercial and/or societal benefits. The program invites proposals from small businesses across a broad range of science and engineering disciplines in collaboration with researchers at universities, Federally-Funded Research and Development Centers, and other non-profit institutions. If you are successful, you will receive a grant of up to $225,000 for a 6-12 month development/ feasibility project. You can then compete for a second grant of up to $750,000 over a 2 year period, with the aim of advancing the technology toward commercial deployment.

The award duration is 6-12 months. STTR Phase I awards previously had a duration of 12 months. Proposers will indicate their requested duration on the Cover Sheet of the proposal.

NSF encourages proposals from a diversity of entrepreneurs – new and seasoned. What is most important is that you have a transformative idea or innovation and that your team's primary goal is the commercialization of the technology. Having no commercialization track record will

not count against you – for many companies, an NSF STTR award is their first attempt at commercializing an innovation.

The NSF STTR Program is particularly interested in proposals that focus on clean energy technology including energy sources that are renewable or otherwise alternatives to traditional fossil fuels such as geothermal, solar wind, biomass, nuclear, methane and emerging sources such as water power. The program is also interested in technologies that help improve energy efficiency or reduction in energy consumption such as building efficiency, more effective distribution of electricity, and vehicle technologies that improve engine efficiency or fuel economy.

Small businesses that will be working with a research institution may also consider the Small Business Innovation Research (SBIR) program. SBIR is similar to STTR. In fact, the programs are discussed in tandem at several points throughout this solicitation and on the SBIR/STTR website. However SBIR has a separate, concurrent Phase I solicitation with a similar due date. Several important differences between SBIR and STTR are outlined on the SBIR/STTR website.

Video resources on the SBIR/STTR website provide a general program description, solicitation-specific information, and helpful proposal preparation advice. A follow-up series of Q&A webinars hosted by SBIR/STTR Program Directors will be held in the months leading up to the deadline date. Links to register for the Q&A sessions will be posted on the SBIR/STTR website.

Required Registrations. Start Now - ***These registrations take time, and if left to the last minute could jeopardize your proposal submission!*** Register the same information in the same way in each of these systems to avoid troubles later. See the Additional Eligibility section for more details.

- Dun and Bradstreet Data Universal Numbering System (DUNS)
- System for Award Management (SAM)
- Small Business Administration (SBA) Company Registry
- NSF FastLane - register company and Principal Investigator (PI)

Please note that STTR Phase I awardees may now submit a proposal for a Phase II award under the Small Business Innovation Research (SBIR) Program (see NSF 14-103 for more information).

Note: The submission of the same project idea to both this SBIR Phase I solicitation and the concurrent STTR Phase I solicitation is strongly discouraged.

Awards: Anticipated Funding Amount: $11,250,000

Letter of Intent: Not Required

Full Proposal Deadlines: June 20, 2016

Contacts:

- Peter Atherton, Information Technologies (IT), telephone: (703) 292-8772, email: patherto@nsf.gov
- Prakash Balan, Chemical and Environmental Technologies (CT), telephone: (703) 292-5341, email: pbalan@nsf.gov
- Steven Konsek, Semiconductors (S) and Photonic (PH) Devices and Materials, and Internet of Things (I), telephone: (703) 292-7021, email: skonsek@nsf.gov
- Glenn H. Larsen, Educational Technologies and Applications (EA), telephone: (703) 292-4607, email: glarsen@nsf.gov
- Rajesh Mehta, Advanced Manufacturing and Nanotechnology (MN), telephone: (703) 292-2174, email: rmehta@nsf.gov
- Muralidharan S. Nair, Electronic Hardware, Robotics and Wireless Technologies (EW), telephone: (703) 292-7059, email: mnair@nsf.gov

- Ben Schrag, Advanced Materials and Instrumentation (MI), telephone: (703) 292-8323, email: bschrag@nsf.gov
- Ruth M. Shuman, Biological Technologies (BT), telephone: (703) 292-2160, email: rshuman@nsf.gov
- Jesus V. Soriano, Smart Health (SH) and Biomedical (BM) Technologies, telephone: (703) 292-7795, email: jsoriano@nsf.gov

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Grant Program: US Ignite: Networking Research and Application Prototypes Leading to Smart & Connected Communities
Agency: National Science Foundation NSF 16-553
RFP Website: http://www.nsf.gov/pubs/2016/nsf16553/nsf16553.htm
Brief Description: US Ignite is an initiative that seeks to promote US leadership in the development and deployment of next-generation gigabit applications with the potential for significant societal impact. The primary goal of US Ignite is to break a fundamental deadlock: there is insufficient investment in gigabit applications that can take advantage of advanced network infrastructure because such end-to-end infrastructure is rare and geographically dispersed. And conversely, there is a lack of broad availability of advanced broadband infrastructure for open experimentation and innovation because there are few advanced applications and services to justify it. US Ignite aims to break this deadlock by providing incentives for imagining, prototyping, and developing gigabit applications that address national priorities, and by leveraging and extending this network testbed across US college/university campuses and cities.

This solicitation builds on the experience and community infrastructure gained from initial US Ignite activities to further engage the US academic research and non-profit communities along with local cities, municipalities, and regions in exploring the challenges of developing and applying next-generation networking to problems of significant public interest and benefit. In particular, this solicitation has two focus areas: the first encourages the development of application ideas and prototypes addressing national priority areas that explore new uses for high-speed networks and give rise to the Smart & Connected Communities of the future, as well as novel networking and application paradigms; and the second pursues fundamental research advances in networking technology and protocols that will further both the capabilities and our understanding of gigabit networking infrastructure to meet current and future application demands. In 2016, NSF is also working with the U.S. Department of Justice (DOJ) Office for Access to Justice (ATJ) to identify additional application ideas and prototypes and basic research directions that may serve national priority areas of mutual interest.
Awards: Focus Area 1 proposals may request up to $600,000 for up to three years. Focus Area 2 proposals may request up to $1,000,000 for up to three years. Anticipated Funding Amount: $10,000,000
Letter of Intent: Not Required
Full Proposal Submission Due Date: June 14, 2016
Contacts:
- Jack Brassil, Program Director, CISE/CNS, telephone: (703) 292-8041, email: jbrassil@nsf.gov
- Bruce Kramer, Program Director, ENG/CMMI, telephone: (703) 292-5348, email: bkramer@nsf.gov
- Wendy Nilsen, Program Director, CISE/IIS, telephone: (703) 292-2568, email: wnilsen@nsf.gov

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National Institutes of Health

Grant Program: Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (Parent T32)
Agency: National Institutes of Health PAR-16-152
RFP Website: http://grants.nih.gov/grants/guide/pa-files/PA-16-152.html
Brief Description: The objective of the Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (T32) program is to develop and/or enhance research training opportunities for individuals interested in careers in biomedical, behavioral and clinical research that are relevant to the NIH mission. The training program should provide:

- A strong foundation in research design, methods, and analytic techniques appropriate for the proposed research area;
- The enhancement of the trainees' ability to conceptualize and think through research problems with increasing independence;
- Experience in conducting research using state-of-the-art methods as well as presenting and publishing research findings;
- The opportunity to interact with members of the scientific community at appropriate scientific meetings and workshops; and
- The enhancement of the trainees' understanding of the health-related sciences and the relationship of their research training to health and disease.

The proposed institutional research training program may complement other ongoing research training and career development programs at the applicant institution, but the proposed program must be clearly distinct from related programs currently receiving Federal support.

Program Considerations

The duration of training, the transition of trainees to individual support mechanisms, and their progress to the next career stage are important considerations in institutional training programs. Training PDs/PIs should limit appointments to individuals who are committed to a research career and who plan to remain in training for at least two years, whether that support comes from a training grant or some combination of NRSA and non-NRSA support programs. Training PDs/PIs should encourage and make available appropriate skills training so that trainees are prepared to apply for subsequent independent support for their training or research program (e.g., an individual fellowship award, mentored career development award, or research project grant), as appropriate for their career stage. In addition, past studies have shown that health professional trainees who train in programs with postdoctoral researchers who have intensive research backgrounds are more likely to apply for and receive subsequent research grant support. Programs that emphasize research training for individuals with the MD or other health-professional degrees are therefore encouraged to develop ties to basic science departments and include trainees with research doctorates when this approach is consistent with the goals of the proposed training program.

Biomedical research and the resulting scientific knowledge are increasingly complex and multidisciplinary in nature. Training PDs/PIs are encouraged to develop institutional training programs that will expose trainees to a diversity of scientific approaches, systems for study, research approaches, and tools and technologies. Consideration of team-based research approaches may also be warranted depending upon the goals of the proposed training program.

Within the framework of the NRSA program's longstanding commitment to excellence and the projected need for investigators in particular areas of research, attention must be given to recruiting trainees from racial or ethnic groups underrepresented in the biomedical,

behavioral and clinical sciences, individuals with disabilities, and individuals from disadvantaged backgrounds.

The career outcomes of individuals supported by NRSA training programs include both research-intensive careers in academia and industry and research-related careers in various sectors, e.g., academic institutions, government agencies, for-profit businesses, and private foundations. Training programs should make available structured, career development advising and learning opportunities (e.g., workshops, discussions, Individual Development Plans). Through such opportunities, trainees are expected to obtain a working knowledge of various potential career paths that would make strong use of the knowledge and skills gained during research training and the steps required to transition successfully to the next stage of their chosen career.

Institutional research training grants must be used to support a program of full-time research training. Within the full-time training period, research trainees who are also training as clinicians must devote their time to the proposed research training and must confine clinical duties to those that are an integral part of the research training experience. The program may not be used to support studies leading to the MD, DDS, or other clinical, health-professional degrees except when those studies are part of a formal combined research degree program, such as the MD/PhD. Similarly, trainees may not accept NRSA support for clinical training that is part of residency training leading to clinical certification in a medical or dental specialty or subspecialty. It is permissible and encouraged, however, for clinicians to engage in NRSA-supported, full-time postdoctoral research training even when that experience is creditable toward certification by a clinical specialty or subspecialty board.

Short-term training is not intended, and may not be used, to support activities that would ordinarily be part of a research degree program, nor for any undergraduate-level training. Short-term positions should be requested at the time of application as described in the NIH Grants Policy Statement. Programs providing only short-term research training should not apply to this announcement, but rather the T35 NRSA FOA, which can be found in the NIH Training Kiosk.

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

Letter of Intents: Not required.

Deadline: Standard dates apply, by 5:00 PM local time of applicant organization.

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: Ruth L. Kirschstein National Research Service Award (NRSA) Short-Term Institutional Research Training Grant (Parent T35)

Agency: National Institutes of Health PA 16-151

RFP Website: http://grants.nih.gov/grants/guide/pa-files/PA-16-151.html

Brief Description: The objective of the Ruth L. Kirschstein National Research Service Award Short-Term Institutional Research Training Grant (T35) program is to develop and/or enhance research training opportunities for health professional students and for graduate students in the physical or quantitative sciences interested in careers in biomedical, behavioral and clinical research that are relevant to the NIH mission. The T35 program provides short-term support for a period of at least 8, but no more than 12, weeks in a grant year for full-time training experiences under the supervision of experienced researchers. Trainees are exposed to individuals with active research careers and learn about further research training opportunities and research career options. The training program should be of sufficient depth to enable

selected trainees, upon completion of the program, to have a thorough exposure to the principles underlying the conduct of biomedical research.

The proposed institutional research training program may complement other ongoing research training and career development programs at the applicant institution, but the proposed program must be clearly distinct from related programs currently receiving Federal support.

Program Considerations

Institutional short-term training grants are intended to introduce predoctoral students to research that would not otherwise be available through their regular course of graduate study. The research experiences should be tailored to the individual trainees, to meet their training goals. Didactic instruction must include training in the responsible conduct of research. Positions on NRSA short-term institutional training grants may not be used for courses and study leading to the MD, DDS, DO, DVM, or other clinical, health professional degree, nor to support residency training.

Research elective credit may be granted for students who complete a short-term, research training experience supported by the T35. The decision to award elective credit will be at the discretion of the sponsoring institution and must be consistent with the policies of the institution (see Funding Restrictions).

Grantee organizations may provide training to students enrolled at other institutions through a partnership or consortium structure. Consortia should be well justified to enhance the goals and objectives of the training program. Consortium partners will be identified by the applicant organization, and each partner institution must identify faculty at their location who have agreed to serve as mentors.

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

Letter of Intents: Not required.

Deadline: Standard dates apply, by 5:00 PM local time of applicant organization.

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: High Impact, Interdisciplinary Science in NIDDK Research Areas (RC2)
Agency: National Institutes of Health PAR-16-126

RFP Website: http://grants.nih.gov/grants/guide/pa-files/PAR-16-126.html

Brief Description: The mission of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) is to conduct and support medical research and research training and to disseminate science-based information on diabetes and other endocrine and metabolic diseases; digestive diseases, nutritional disorders, and obesity; and kidney, urologic, and hematologic diseases, to improve people's health and quality of life. To that end, the NIDDK, through extramural grants programs of its Programmatic Divisions, supports a broad range of biomedical research. Previous research has enormously increased our understanding of the molecular, cellular and behavioral bases of disease and our approaches to health care. The most recent advances in technology and science create numerous opportunities for the public and private sectors to accelerate discoveries for the prevention, diagnosis and treatment of disease. The high complexity of the technologies and data systems required for this type of research, and the requirements for large interdisciplinary teams significantly limit progress and prevent private sector investments and expansions.

The purpose of the High Impact, Interdisciplinary Science grants program is to support high impact ideas that may lay the foundation for new fields of investigation within the mission

of NIDDK. The interdisciplinary approach encouraged by this FOA could be used to generate a research resource for the broader community, which may include discovery-based or hypothesis-generating science. The interdisciplinary research team should be able to provide an integrative plan of working together to effectively address the complex challenge at hand. This program will support research projects that accelerate critical breakthroughs, early and applied research on cutting-edge technologies, and new approaches to improve the synergy and interactions among multi and interdisciplinary research teams. This FOA seeks novel approaches in areas that address specific knowledge gaps, scientific opportunities, new technologies, data generation, or research methods that will advance the area in significant ways designed to accelerate scientific progress in understanding, treatment and prevention of diseases within the mission of NIDDK.

Scope and Specific Requirements

The scope of this FOA includes, but is not limited to, the following:

- Groundbreaking, innovative, high impact and cross-cutting research projects that will improve and accelerate biomedical research.
- Basic, clinical and translational projects that could fundamentally enhance the research enterprise and that require the participation, interaction, coordination and integration of activities carried out in multiple research laboratories.
- Creation of large scale unique resources, accelerated application of high throughput, and other novel technologies.
- Deployment of critical infrastructure, resources, tools, and methodologies that substantially accelerate collaborative, multi and interdisciplinary basic, translational, and/or clinical research.
- Implementation of large scale research projects that are carried out using new and creative collaborative agreements and partnerships.
- Discovery-based and hypothesis-generating science.
- Creative approaches to overcome barriers to basic, translational, or clinical research using novel tools, technologies, and services.

RC2 projects are ***not intended to support:***

- Traditional investigator-initiated and highly focused studies (best supported by the R01 or P01 mechanisms).
- Research that is a logical extension of ongoing work.
- Core (or related) services to supplement the budgets of existing R01-type efforts.
- Groups of investigators at the same institution who would normally interact and collaborate in the absence of a collaborative grant.

Prior Consultation with NIDDK

Consultation with NIDDK staff at least **3 months (and preferably 6 months)** prior to the application due date (including resubmission applications) is strongly encouraged for submission of the High Impact, Interdisciplinary Science in NIDDK Research (RC2) application. If requested, NIDDK staff will consider whether the proposed RC2 meets the goals and mission of the Institute; whether it addresses one or more high priority research areas; and whether the application is best fit to the RC2 activity code. NIDDK staff will not evaluate the technical and scientific merit of the proposed project; technical and scientific merit will be determined during peer review using the review criteria indicated in this FOA. During the consultation phase, if the proposed project does not meet NIDDK's programmatic needs or is not appropriate for this FOA, applicants will be strongly encouraged to consider other Funding Opportunities.

Awards: The number of awards is contingent upon NIH appropriations and the submission of a sufficient number of meritorious applications.

Letter of Intents: Six weeks prior to the application due date.

Deadline: June 1, 2016; November 1, 2016; June 1, 2017; November 1, 2017; June 1, 2018; November 1, 2018, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Department of Defense/US Army/DARPA/ONR

Grant Program: Update: Fiscal Year 2017 Defense University Research Instrumentation Program (DURIP)
Agency: AFOSR - Department of Defense AFOSR PA-AFRL-AFOSR-2016-0001
RFP Website: http://www.arl.army.mil/www/pages/8/PA-AFRL-AFOSR-2016-0001-FINAL.pdf
Brief Description: The Department of Defense (DoD) announces the Fiscal Year 2017 Defense University Research Instrumentation Program (DURIP). DURIP is designed to improve the capabilities of accredited United States (U.S.) institutions of higher education to conduct research and to educate scientists and engineers in areas important to national defense, by providing funds for the acquisition of research equipment or instrumentation. For-profit organizations are not eligible for DURIP funding. This announcement seeks proposals from universities to purchase equipment and instrumentation in support of research in areas of interest to the DoD. DoD interests include the 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 generally referred to collectively as "we, our, us, or administering agency." Each administering agency will make grant awards to fund the purchase of research equipment or instrumentation costing $50,000 or more that cannot typically be purchased within the budgets of single-investigator awards. We generally cannot make any individual award that exceeds more than $1,500,000 in DoD funding unless your proposal qualifies for an exception. We intend to award approximately $47 million this competition, subject to availability of funds. DURIP awards are typically one year in length. DURIP is part of the University Research Initiative (URI). All the application forms you need are available electronically on Grants.gov. We will not provide paper copies of this announcement, or accept paper applications. All applications must be submitted electronically through Grants.gov.

Pre-Proposal Inquiries and Questions Encouraged

We encourage you to contact the DoD Program Managers listed in our broad agency announcements identified in section A. Program Description before submitting proposals to explore research areas of mutual interest to you and us.
If you need help with general questions or problems, the appropriate individual listed in section G. Agency Contacts should be contacted.
Your pre-proposal inquiries and questions should be submitted not later than Friday, 12 Aug 2016. We may not be able to answer questions received later. We discuss this more in section 5. Submission Dates and Times.
Program Managers and administering agency technical contacts do not have the authority to make commitments for us. Grants and Contracting Officers acting within their warranted capacity are the only people authorized to make commitments for the Government.
Awards: Up to $1,500,000.
Deadline: Aug 26, 2016 Your proposal must be received no later than Friday, August 26, 2016 at 11:59 PM Eastern Daylight time to be considered INQUIRIES AND QUESTIONS DEADLINE Friday, August 12, 2016.

Department of Energy

Grant Program: Addressing Risk and Uncertainty in the Future Power System
Agency: AFOSR - Department of Energy DE-FOA-0001493
RFP Website: http://www.netl.doe.gov/business/solicitations
Brief Description: The nation's wholesale electricity markets and transmission planning are in a state of transition. The Department of Energy's (DOE's) Office of Electricity Delivery and Energy Reliability (OE) is interested in both operational and planning modeling and computation methodologies/techniques needed to support the future engineering and market functions required by these systems. Addressing risk and uncertainty is central to meeting the needs and ensuring reliability is a fundamental requirement of the system. There are three research areas for this Funding Opportunity Announcement (FOA): a) wholesale market operations, b) transmission planning, and c) demand-side participation. In accordance, with Section III-Eligibility Requirements, this FOA is being restricted to United States (US) Colleges, Universities, and University-affiliated Research Institutions with accredited undergraduate and graduate programs.
Awards: Up to $360,000
Deadline: Apr 21, 2016 Please refer to the FOA application due date information contained in the full FOA announcement.

NASA

Grant Program: Research Opportunities in Space Biology (ROSBio) - 2016
Agency: NASA NNH16ZTT001N GL
RFP Website:
https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={78A2FFEA-172B-3168-8D3D-AA824896833F}&path=open
Brief Description: This National Aeronautics and Space Administration NRA "Appendix A - GeneLab Innovation Awards for Translational Systems Biology and Informatics Research Using the GeneLab Data System" is an Appendix to the omnibus NASA Research Announcement ROSBio-2016. This NRA solicits research that utilizes the GeneLab Data System to translate spaceflight research data into new knowledge relating to the responses of living systems in the spaceflight environment. Proposals are required to use the GeneLab Data System, on its own, or in combination with other public spaceflight and ground-based omics databases. Proposals are sought that address two specific research emphases: a) Systems Biology Informatics Research Using the GeneLab Data System: Proposals should be designed to develop new computational biology tools that will enable users to perform novel informatics research that enhance the usability and value of GeneLab for all future open science-based investigations. b) Systems Biology Experimental Research Using the GeneLab Data System: Proposals are invited for ground-based hypothesis-driven research investigations that are derived from analyzing the data in the GeneLab Data System. Proposals must translate the spaceflight derived data in the GeneLab database into new knowledge that addresses the objectives of NASA's life sciences missions and contributes new data and information to GeneLab. NASA anticipates that up to 3 awards will be made for the research requested in this NRA and that each grant will last 1-2 years for a total cost of $250K. Appendix A, which will be released on or about March 24, 2016 can be found by opening the NASA Research Opportunities homepage at http://nspires.nasaprs.com/ and then linking through the menu listings "Solicitations" to "Open

Solicitations." Non-binding notices of Intents (NOIs) are due April 25, 2016 at 5 PM Eastern Time, and full proposals, the technical section of which shall not exceed 15 pages, are due June 28, 2016 at 5 PM Eastern Time. Proposals must be submitted electronically by an authorized official of the proposing organization. Proposers may use either NSPIRES (http://nspires.nasaprs.com/) or Grants.gov (http://www.grants.gov) for proposal submission. NASA's selection of research projects will be guided by recommendations of the National Research Council's 2011 Decadal Survey Report, "Recapturing a Future for Space Exploration: Life and Physical Sciences Research for a New Era" (http://www.nap.edu/catalog/13048.html) All categories of U.S. institutions are eligible to submit proposals in response to this Appendix. Principal Investigators (PIs) may collaborate with investigators from universities, Federal Government laboratories, the private sector, state and local government laboratories and other countries with the exception of China. Every organization that intends to submit a proposal in response to Appendix A must be registered with NSPIRES, and such registration must identify the authorized organizational representative(s) who will submit electronic proposals. Instructions on how to register in NSPIRES are described in the omnibus NRA (ROSBio-2016). Each electronic proposal requires the registration of principal investigators and other participants (e.g. co-investigators). Potential proposers and proposing organizations are urged to access the system(s) well in advance of the proposal due date(s) to familiarize themselves with its structure and enter the requested information. Questions about this ROSBio-2016 and this Appendix may be addressed to the contacts referenced in the full solicitation document. This is a broad agency announcement as specified in FAR 6.102 (d)(2). All awards resulting from selections of proposals to this Appendix and future Appendices will be grants or cooperative agreements. Programmatic information for this NRA is available from: Dr. David L. Tomko, Program Scientist for Space Biology Life and Physical Sciences Division, NASA Headquarters Phone: 202-358-2211 Email: dtomko@nasa.gov NASA contracting information for this NRA is available from: Benjamin S. Benvenutti, Lead Contract Specialist NASA Shared Services Center Email: benjamin.s.benvenutti@nasa.gov Phone: (228) 813-6128
Award: $250,000 each
Letter of Intent: April 25, 2016
Proposal Deadline: June 28, 2016

Grant Program: Research Opportunities in Space and Earth Sciences 2016 (ROSES–2016) Astrophysics Data Analysis
Agency: NASA NNH16ZDA001N-ADAP
RFP Website:
https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId=%7BC8318766-786D-1262-D3C9-9C888D2873CE%7D&path=open
Brief Description: This ROSES NRA (NNH16ZDA001N) solicits basic and applied research in support of NASA's Science Mission Directorate (SMD). This NRA covers all aspects of basic and applied supporting research and technology in space and Earth sciences, including, but not limited to: theory, modeling, and analysis of SMD science data; aircraft, scientific balloon, sounding rocket, International Space Station, CubeSat and suborbital reusable launch vehicle investigations; development of experiment techniques suitable for future SMD space missions; development of concepts for future SMD space missions; development of advanced technologies relevant to SMD missions; development of techniques for and the laboratory analysis of both extraterrestrial samples returned by spacecraft, as well as terrestrial samples that support or otherwise help verify observations from SMD Earth system science missions; determination of atomic and composition parameters needed to analyze space data, as well as returned samples

from the Earth or space; Earth surface observations and field campaigns that support SMD science missions; development of integrated Earth system models; development of systems for applying Earth science research data to societal needs; and development of applied information systems applicable to SMD objectives and data. Awards range from under $100K per year for focused, limited efforts (e.g., data analysis) to more than $1M per year for extensive activities (e.g., development of specialized science experimental hardware). The funds available for awards in each program element offered in this NRA range from less than one to several million dollars, which allow selection from a few to as many as several dozen proposals, depending on the program objectives and the submission of proposals of merit. Awards will be made as grants, cooperative agreements, contracts, and inter- or intraagency transfers, depending on the nature of the work proposed, the proposing organization, and/or program requirements. The typical period of performance for an award is three years, but some programs may allow up to five years and others specify shorter periods. Organizations of every type, domestic and foreign, Government and private, for profit and not-for-profit, may submit proposals without restriction on teaming arrangements. Note that it is NASA policy that all investigations involving non-U.S. organizations will be conducted on the basis of no exchange of funds. Electronic submission of proposals is required by the respective due dates for each program element and must be submitted by an authorized official of the proposing organization. Electronic proposals may be submitted via the NASA proposal data system NSPIRES or via Grants.gov. Every organization that intends to submit a proposal in response to this ROSES NRA must be registered with NSPIRES; organizations that intend to submit proposals via Grants.gov must be registered with Grants.gov, in addition to being registered with NSPIRES. Such registration must identify the authorized organizational representative(s) who will submit the electronic proposal. All principal investigators and other participants (e.g., co-investigators) must be registered in NSPIRES regardless of submission system. Potential proposers and proposing organizations are urged to access the system(s) well in advance of the proposal due date(s) of interest to familiarize themselves with its structure and enter the requested information. Details of the solicited programs are given in the Appendices of this ROSES NRA. Names, due dates, and links for the individual calls are given in Tables 2 and 3 of this ROSES NRA. Interested proposers should monitor http://nspires.nasaprs.com/ or subscribe to the electronic notification system there for additional new programs or amendments to this ROSES NRA through February 2017, at which time release of a subsequent ROSES NRA is planned. A web archive (and RSS feed) for amendments, clarifications, and corrections to this ROSES NRA will be available at: http://nasascience.nasa.gov/researchers/sara/grant-solicitations/roses-2016/ Frequently asked questions about ROSES-2016 will be on the web at http://science.nasa.gov/researchers/sara/faqs/. Further information about specific program elements may be obtained from the individual Program Officers listed in the Summary of Key Information for each program element in the Appendices of this ROSES NRA and at http://science.nasa.gov/researchers/sara/program-officers-list/. Questions concerning general ROSES NRA policies and procedures may be directed to Max Bernstein, Lead for Research, Science Mission Directorate, at sara@nasa.go.

Award: Various.

Proposal Deadline: May 13, 2016.
