**Recent Awards**

**Event:** Eighth Brazilian Scientific Mobility Program: Closing Ceremony  
**When:** August 3, 2015; 10:30 AM – 2:00 PM  
**Where:** Architecture Gallery, Weston Hall  
**Brief Description:** More than 35 Brazilian students will be presenting their research projects on August 3 at the Architecture Gallery. These students worked on projects during the summer at NJIT with faculty advisors through the Brazil Scientific Mobility Program sponsored by the Institute of International Education, a contractual administrative agency for academic training program for Brazilian students in the U.S.

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**Grant Opportunities**

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

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**Recent Research Grant and Contract Awards**

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

**PI:** Lazar Spasovic (PI)  
**Department:** Mathematical Sciences  
**Grant/Contract Project Title:** NJDOT E-STIP Upgrades, Maintenance & Support  
**Funding Agency:** NJDOT  
**Duration:** 07/15/15-07/14/17

**PI:** Wenbo Cai (PI)  
**Department:** Mechanical and Industrial Engineering  
**Grant/Contract Project Title:** Collaborative Research: Optimizing Incentives for Carbon Capture and Storage Systems  
**Funding Agency:** NSF  
**Duration:** 09/01/15-08/31/18
Event: Science and Engineering (CISE) Research Initiation Initiative (CRII) Program Seminar
When: August 5, 2015 1:00 PM to 2:00 PM

Brief Description: The CRII solicitation seeks to support new faculty by encouraging research independence immediately upon obtaining one's first academic position after receipt of the PhD. CISE will award grants to initiate the course of one's independent research. Understanding the critical role of establishing that independence early in one's career, it is expected that funds will be used to support untenured faculty or research scientists (or equivalent) in their first two years in an academic position after the PhD. To be eligible, the PI may not yet have received any other grants in the Principal Investigator (PI) role from any institution or agency, including from the CAREER program or any other award post-PhD. Serving as co-PI, Senior Personnel, Post-doctoral Fellow, or other Fellow does not count against this eligibility rule. It is expected that these funds will allow the new CISE Research Initiation Initiative (CRII) PI to support one or more graduate students for up to two years. For PIs at undergraduate institutions, the funds may be used to support undergraduate students.

This webinar is designed to describe the goals and focus of the CRII solicitation, help investigators understand its scope, and answer any questions potential PIs may have. A Frequently Asked Questions (FAQ) will be made available prior to the webinar (see below); PIs are encouraged to review that list prior to the event.

The webinar will be held from 1pm to 2pm EDT on Wednesday, August 5, 2015. Questions about the solicitation can be submitted in advance or during the webinar to crii@nsf.gov.


After your registration is accepted, you will receive an email with a URL to join the meeting. Please be sure to join a few minutes before the start of the webinar. This system does not establish a voice connection on your computer; instead, your acceptance message will have a toll-free phone number that you will be prompted to call after joining. Please note that this registration is a manual process; therefore, do not expect an immediate acceptance. In the event the number of requests exceeds the capacity, some requests may have to be denied.

The webinar presentation, audio file and transcript will be available below under "Public Attachments" after webinar is over. You can view these files and Frequently Asked Questions (FAQs) at the CRII webpage at http://www.nsf.gov/pubs/2015/nsf15087/nsf15087.jsp?WT.mc_id=USNSF_25&WT.mc_ev=click.

Event: NJ Association for Biomedical Sciences (NJABR) 22nd Annual IACUC Conference - the region's premier training conference for Institutional Animal Care and Use Committee (IACUC)
Website: Register early at the website before September 1, 2015: http://events.r20.constantcontact.com/register/event?oeidk=a07eb7qwx1cbd6d8427&llr=nujebhdab
When: Friday October 16, 2015 from 8:00 AM to 5:00 PM EDT
**Where:** The Palace at Somerset Park, 333 Davidson Avenue, Somerset, NJ 08873

**Brief Description:** On October 16, 2015, the New Jersey Association for Biomedical Research (NJABR) is pleased to offer its 22nd Annual IACUC Conference - the region’s premier training conference for Institutional Animal Care and Use Committee members, lab animal veterinarians, animal welfare compliance specialists and lab animal research team members. This year’s conference will focus on regulatory body annual reporting requirements, exemption and exception reporting changes, inspection preparedness, best practices, and much more.

IACUC 22 will feature keynote presentations and a plenary session featuring noted experts in the field, including **Taylor Bennett**, DVM, PhD, **Jeannie Perron**, Esq., DVM, as well as representatives from the United States Department of Agriculture, the Office of Laboratory Animal Welfare and the Association for Assessment and Accreditation of Laboratory Animal Care International.

The conference will also offer a selection of afternoon workshops led by plenary session speakers and other leading professionals in the laboratory animal welfare field. Workshop topics will include:

- New IACUC Member Training
- Managing Inspections
- Protocol Sampling Guidelines
- Annual Reporting Preparation
- Self-reporting and Animal Welfare Issues
- Social Housing
- Ask the Experts

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**Grant Opportunity Alerts**

Keywords and Areas Included in Grant Opportunity Alerts:

**NSF:** CISE Research Infrastructure (CRI); Engineering Research Centers (ERC); Ideas Lab: Measuring "Big G" Challenge; Advancing Informal STEM Learning (AISL); Particulate and Multiphase Processes; Biotechnology and Biochemical Engineering; Chemical and Biological Separations; Environmental Engineering; Biomedical Engineering; Nano-Bio Phenomena and Processes in the Environment

**NIH: BRAIN Initiative:** Theories, Models and Methods for Analysis of Complex Data from the Brain (R01); Building towards Statistically-Based Pharmaceutical Quality Standards (U01); Alzheimer’s Disease Translational Center for Disease Model Resources (U54)

**DoD/ONR/AFOSR/ARL:** Defense Medical Research and Development Program (DMRDP) DoD DMRDP JPC-1/MSIS; Reconstructive Transplant Research (RTR) Program; Idea Development Awards

**NASA:** ROSES 2015: Wide-Field InfraRed Survey Telescope (WFIRST)
Grant Opportunities

National Science Foundation

Grant Program: CISE Research Infrastructure (CRI)
Agency: National Science Foundation NSF 15-590
RFP Website: http://www.nsf.gov/pubs/2015/nsf15590/nsf15590.htm

Brief Description: The CISE Research Infrastructure (CRI) program drives discovery and learning in the core CISE disciplines of the three participating CISE divisions by supporting the creation and enhancement of world-class research infrastructure that will support focused research agendas in computer and information science and engineering. This infrastructure will enable CISE researchers to advance the frontiers of CISE research. Further, through the CRI program CISE seeks to ensure that individuals from a diverse range of academic institutions, including minority-serving and predominantly undergraduate institutions, have access to such infrastructure.

The CRI program supports two classes of awards:

- **Institutional Infrastructure (II)** awards support the creation of new (II-NEW) CISE research infrastructure or the enhancement (II-EN) of existing CISE research infrastructure to enable world-class CISE research opportunities at the awardee and collaborating institutions.

- **Community Infrastructure (CI)** awards support the planning (CI-P) for new CISE community research infrastructure, the creation of new (CI-NEW) CISE research infrastructure, the enhancement (CI-EN) of existing CISE infrastructure, or the sustainment (CI-SUSTAIN) of existing CISE community infrastructure to enable world-class CISE research opportunities for broad-based communities of CISE researchers that extend well beyond the awardee institutions. Each CI award may support the operation of such infrastructure, ensuring that the awardee institution(s) is (are) well positioned to provide a high quality of service to CISE community researchers expected to use the infrastructure to realize their research goals.

**Awards:** With up to 20 Institutional Infrastructure (II) awards and up to 10 Community Infrastructure (CI) awards in each competition. The majority of the II awards will be made in the $200,000 - $750,000 range, though a small number of II awards may be made in the $750,000 - $1,000,000 range. The majority of the CI awards will be made in the $500,000 - $1,000,000 range, though a very small number of CI awards may be made in the $1,000,000 - $2,500,000 range.

**Anticipated Funding Amount:** $18,000,000 annually, subject to the availability of funds.

**Letter of Intent:** Not required but Pre-Proposal required

**Pre-Proposal Deadline:** November 10, 2015

**Full Proposal Deadlines:** January 20, 2016

**Contacts:**

- Harriet G. Taylor, Lead Program Director, CNS, 1175, telephone: (703) 292-8950, email: hhtaylor@nsf.gov
- Sankar Basu, Program Director, CCF, 1115, telephone: (703) 292-8910, email: sabasu@nsf.gov
- Mimi McClure, Program Director, CNS, 1145, telephone: (703) 292-8950, email: mmclure@nsf.gov
- Chris Clifton, Program Director, IIS, 1125, telephone: (703) 292-8930, email: cclifton@nsf.gov
Grant Program: Gen-3 Engineering Research Centers (ERC)  
Partnerships in Transformational Research, Education, and Technology  
Agency: National Science Foundation  
NSF 15-589  
Brief Description: The goal of the ERC Program is to integrate engineering research and education with technological innovation to transform national prosperity, health, and security. ERCs create an innovative, inclusive culture in engineering to cultivate new ideas and pursue engineering discovery that achieves a significant science, technology, and societal outcome within the 10-year timeframe of NSF support. For information on individual ERCs and their achievements, go to: http://www.ERC-assoc.org.  
Those who submit proposals in response to this solicitation will need to address the following questions:  
• What is the compelling new idea and how does it relate to national needs?  
• Why is a center necessary to tackle the idea?  
• How will the ERC’s infrastructure integrate and implement research, workforce development and innovation ecosystem development efforts to achieve its vision?  
The ERCs awarded through this solicitation shall have an infrastructure that integrates and implements the key features (research, workforce development, and innovation ecosystem development) to address the following gaps/barriers:  
• Research  
  ◦ To conduct an interdisciplinary research program that aligns systems-motivated fundamental and applied research with enabling and systems technologies to demonstrate proofs-of-principle of the engineered systems developed in test beds  
  ◦ To translate interdisciplinary advances from research in fundamental knowledge, enabling technology, and transformational engineered systems to innovation  
• Workforce Development  
  ◦ To implement research-based education programs that produce a diverse, globally competitive, and team-oriented engineering workforce that has experience in research, industrial practice, technology advancement, entrepreneurship, and innovation  
  ◦ To broaden pathways to engineering for underrepresented students  
• Innovation Ecosystem Development  
  ◦ To create an innovation ecosystem that brings industrial/practitioner perspectives in research and workforce development to the ERC by leveraging industry resources and research capacity  
To accelerate transfer of ERC advances in knowledge, technology, and systems to impact key sectors of industry and professional engineering practices and academic curricula  
Awards: Start-up base support will not exceed $3,500,000 for year one. Pending satisfactory annual performance, need, and availability of funds, the base support may increase to $3,750,000 (year 2), $4,000,000 (year 3), $4,250,000 (year 4), and $4,250,000 (year 5). Pending performance and the outcome of two renewal reviews in the third and sixth year, support for years six through eight is projected to be up to $4,250,000 in each of those years; and support for year nine and ten will be phased down at a reduced level of 33% of the prior
year's support to prepare the ERC for self-sufficiency from ERC program support at the end of 10 years.

**Letter of Intent:** September 25, 2015

**Deadlines:**

- **Preliminary Proposal Due Date(s) (required)** (due by 5 p.m. proposer's local time):
  - October 23, 2015
- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):
  - June 16, 2016

**Cost Sharing:** Cost sharing is required. However, inclusion of "voluntary committed cost sharing" is specifically prohibited in NSF’s revised cost sharing policy, as stated in the NSF Proposal and Award Policies and Procedures Guide. ERC proposals that include cost sharing amounts in excess of the specified formula described in this solicitation will be returned without review.

**Webinar:** The NSF ERC team plans to broadcast a webinar within approximately 30 days of the release of the solicitation. In the webinar, key features and expectations of ERCS will be discussed. At NSF’s discretion, a live and/or recorded webinar may be broadcast. Questions should be submitted in advance of the webinar to the cognizant Program Officer(s). FAQs shall be posted as needed.

**Feedback from NSF:** A proposing team may meet with ERC Program staff, via teleconference, only once during the preliminary proposal preparation phase. No other meetings with NSF staff will be allowed during the competition. Proposers can request this teleconference via an email correspondence, addressed to: kroper@nsf.gov. The email must include: (1) a ≤ 10-sentence summary of the ERC’s vision for an inclusive, engineered system with sufficiently detailed research focus, engineering workforce development program, and innovation ecosystem; and (2) an attached 3-plane strategic plan chart.

**Contacts:**

See program website for any updates to the points of contact.

- D. Keith Roper, telephone: (703) 292-8769, email: kroper@nsf.gov
- Amy Chan-Hilton, telephone: (703) 292-4623, email: achanhil@nsf.gov
- Deborah Jackson, telephone: (703) 292-7499, email: djackson@nsf.gov
- Carmiña Londoño, telephone: (703) 292-7053, email: clondono@nsf.gov
- Carole Read, telephone: (703) 292-2418, email: cread@nsf.gov

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**Grant Program:** Ideas Lab: Measuring "Big G" Challenge

**Agency:** National Science Foundation NSF 15-591


**Brief Description:** The gravitational constant, G, describes the strength of gravitation, the weakest of the four fundamental interactions in nature. Although several hundred measurements of this constant have been performed over the last two and a quarter centuries, recent experiments differ by as much as 0.05%, about 40 times the uncertainty of the most precise experiment.

Motivations to resolve the current discrepancy with better measurements are two-fold. First, the search for a theory that unifies gravitation with quantum electrodynamics is an active area of research. Such a theory may be able to predict the value of G, and an experimental result may become important to test such theories. Second, understanding the subtleties involved in precisely and absolutely measuring a small force is important for many
fields of physics and metrology, including the Casimir effect, spring constants of atomic force microscopy (AFM) cantilever, intermolecular forces in DNA.

This solicitation describes an Ideas Lab on "Measuring Big G" Ideas Labs are intensive meetings focused on finding innovative solutions to grand challenge problems. The ultimate aim of this Ideas Lab organized by the Physics Division of the Mathematical and Physical Sciences Directorate at the National Science Foundation (NSF), in collaboration with experts in the field, is to facilitate the development of new experiments designed to measure Newton’s gravitational constant G with relative uncertainties approaching or surpassing one part in 100,000. The aspiration is that mixing researchers from diverse scientific backgrounds will engender fresh thinking and innovative approaches that will provide a fertile ground for new ideas on how to measure G that can be used to validate and extend current calculations. US researchers may submit preliminary proposals for participation in the Ideas Lab only via FastLane. The goal is to develop multidisciplinary ideas that eventually will be submitted as full proposals.

**Awards:** Up to 5 awards will be made in FY 2016 pending availability of funds and the type, scale, and variety of project ideas developed at the Ideas Lab. **Anticipated Funding Amount:** $1,000,000 to $2,000,000

**Letter of Intent:** Not required but Pre-Proposal required

**Pre-Proposal Deadline:** September 21, 2015

**Full Proposal Deadlines:** January 14, 2016

**Contact:**
- Pedro Marronetti, 1015 N, telephone: (703) 292-7372, email: pmarrone@nsf.gov
- John Gillaspy, 1015 N, telephone: (703) 292-7173, email: jgillaspy@nsf.gov

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**Grant Program:** Advancing Informal STEM Learning (AISL)

**Agency:** National Science Foundation NSF 15-593


**Brief Description:** The Advancing Informal STEM Learning (AISL) program seeks to advance new approaches to and evidence-based understanding of the design and development of STEM learning opportunities for the public in informal environments; provide multiple pathways for broadening access to and engagement in STEM learning experiences; and advance innovative research on and assessment of STEM learning in informal environments.

The AISL program supports seven types of projects: (1) Collaborative Planning, (2) Exploratory Pathways, (3) Research in Service to Practice, (4) Innovations in Development, (5) Broad Implementation, (6) Conferences, and (7) Informal STEM Learning Resource Center (FY 2016 only).

The range of project types available serve different functions and support varied strategies for guiding proposed work. Types 1 and 2 are smaller-scale investments designed to provide teams with an opportunity to understand complex STEM learning issues and potential solutions, test methods, and reach beyond typical comfort zones or collaborations. Types 3, 4, and 5 provide opportunities to more fully explore questions and issues for which there is a significant literature or practice base. Proposal types 5 and 6 offer additional mechanisms for building capacity, advancing informal STEM learning, and synthesizing knowledge.

**Collaborative Planning**

Projects can be funded for up to $150,000 total and one year in duration. Collaborative Planning projects provide groups of people and organizations the support necessary to
increase partnerships, understanding, and influence, so that they can develop ideas and strategies to address the most complex issues of the field. Successfully attacking these complex problems will likely require a range of expertise including informal STEM practitioners, education and learning researchers, STEM discipline researchers, and others. AISL welcomes high risk / high reward and unexpected approaches to informal STEM learning and practice.

- **Exploratory Pathways**
  Projects can be funded for up to $300,000 total and up to two years in duration. Exploratory Pathways projects are opportunities for practitioners and researchers to investigate issues in and approaches to informal STEM learning and to establish the basis for future research, design, and development of innovations or approaches. Such exploratory development work or feasibility studies should produce evidence, findings, and/or prototype deliverables that help the team make critical decisions about future work.

- **Research in Service to Practice**
  Projects can be funded for $300,000 to $2 million and from two to five years in duration. AISL welcomes focused projects in the $300k-$750k range in addition to larger projects. The Research in Service to Practice (RSP) project type focuses on research that advances knowledge and the evidence base for practices, assumptions, broadening participation, or emerging educational arrangements in STEM learning in informal environments. For these proposals it is important for practice to inform the research as well as having research inform practice.

- **Innovations in Development**
  Projects can be funded for $500,000 to $3 million and up to five years in duration. AISL welcomes focused projects in the $500k-$750k range in addition to larger projects. The Innovations in Development project type is expected to result in deliverables such as exhibits, media products, afterschool programs, etc., and in innovative models, programs, technologies, assessments, resources, or systems for an area of STEM learning in informal environments. Projects should build on evidence from prior development and research efforts. It is understood that innovations take many forms and occur at different scales. Thus projects may put forward small, medium or larger scale innovations depending on the nature of what is being innovated.

- **Broad Implementation**
  Projects can be funded for $1 million to $3 million and from two to five years in duration. The Broad Implementation project type supports the expansion or reach of models, programs, technologies, assessments, resources, research, or systems that have a documented record of success, innovation, or evidence-based knowledge building. Sources of evidence may include summative evaluation or research data that indicate readiness for distribution to a broader population or new setting(s) and should be summarized in the proposal narrative. (See notes in Supplementary Documents.)

- **Conferences** (see [GPG, II.D.8.](#))
  Projects can be funded for up to $250,000 and are usually from one to two years in duration. The "Conferences" category may be used for conferences, symposia, or workshops. These activities should be well-focused, relate to the goals of the AISL program, and generate product(s) usable by practitioners and researchers. The program is particularly interested in proposals that lead to, for example, the development of communities of practice, the formulation of field-advancing practice, assessments, and research agendas for the participating professional communities. Proposals should clearly indicate how convening and outcomes support expanded or new thinking about knowledge building, innovation, strategic impact, and collaboration.
Informal STEM Learning Resource Center

Up to 1 (one) center will be funded for up to $5,000,000 and five years.

As a special emphasis for professional audiences under this solicitation, AISL seeks proposals that will result in a single award for the development and implementation of an Informal STEM Learning Resource Center (ISLRC). The ISLRC supports the informal STEM Learning field, NSF Principal Investigators, and Advancing Informal STEM Learning and other NSF programs.

Awards: Pending availability of funds, it is anticipated that about 10-12 Collaborative Planning awards, 10-12 Exploratory Pathways awards, 6-8 Research in Service To Practice awards, 8-10 Innovations in Development awards, 3-6 Broad Implementation awards, and 5-7 Conference awards will be made. AISL will also fund 5-7 awards made through the EAGER and RAPID mechanisms and 2-4 CAREER awards. Up to one (1) Informal STEM Learning Resource Center award is anticipated in FY 2016.

$28 - $38M in FY 2016 is anticipated to be available for new awards made under this solicitation, pending availability of funds. Limits for funding requests of AISL proposals are as follows: (1) Collaborative Planning projects: up to $150,000 with duration of one year; (2) Exploratory Pathways projects: up to $300,000 with duration up to two years; (3) Research in Service to Practice projects: from $300,000 to $2,000,000 with a duration from two to five years; (4) Innovations in Development projects: $500,000 to $3,000,000 with duration from two to five years; (5) Broad Implementation projects from $500,000 to $3,000,000 with a duration from two to five years; (6) Conference projects up to $250,000 with a duration of up to two years; and (7) up to one Informal STEM Learning Resource Center award up to $5 million with a duration of five years. If the Resource Center is funded in 2016, there will not be a competition for a Resource Center in 2017.

Letter of Intent: Not required

Deadlines: Full Proposal: November 04, 2015

Contact: Address Questions to the Program, telephone: (703)292-8616, DRLAISL@nsf.gov

Grant Program: Particulate and Multiphase Processes
Agency: National Science Foundation NSF PD 15-1415

RFP Website: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13364&org=NSF&sel_org=NSF&from=fund

Brief Description: The goal of the Particulate and Multiphase Processes (PMP) program is to support fundamental research on physico-chemical phenomena that govern particulate and multiphase systems, including flow of suspensions, drops and bubbles, granular and granular-fluid flows, behavior of micro- and nanostructured fluids, and self-assembly/directed-assembly processes that involve particulates. The program encourages transformative research to improve our basic understanding of particulate and multiphase processes with emphasis on research that demonstrates how particle-scale phenomena affect the behavior and dynamics of larger-scale systems. Although proposed research should focus on fundamentals, a clear vision is required that anticipates how results could benefit important applications in advanced manufacturing, energy harvesting, transport in biological systems, biotechnology, or environmental sustainability. Collaborative and interdisciplinary proposals are encouraged, especially those that involve a combination of experiment with theory or modeling. Proposals whose main focus is on the synthesis of particles are not encouraged.
Major research areas of interest in the program include:

- **Multiphase flow phenomena**: Dynamics of particle/bubble/droplet systems, behavior of structured fluids (colloids/ferro-fluids), granular flows, rheology of multiphase systems, and novel approaches that relate micro- and nanoscale phenomena to macroscale properties and process-level variables.

- **Particle science and technology**: Aerosols, production of particles and polymer-particle complexes with engineered properties, self-assembly, directed assembly, and template-directed assembly of particles into functional materials and devices.

- **Multiphase transport in biological systems**: Analysis of physiological processes, applications of functionalized nanostructures in clinical diagnostics and therapeutics.

- **Interfacial transport**: Dynamics of particles and macromolecules at interfaces, kinetics of adsorption and desorption of nanoparticles and surfactants and their spatial distributions at interfaces, complex molecular interactions at interfaces, formation of interfacial complexes that affect the dynamics of particles.

**NOTE**: For PMP proposals involving aspects of sustainable chemistry, consider making proposal submissions to this program (1415) with the Proposal Title as: `SusChEM: Title of Your Proposal`. For more information on SusChEM-related proposals please [click here](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501024&org=NSF&sel_org=NSF&from=fund). The same applies for proposals involving sustainable engineering.

The duration of unsolicited awards is generally one to three years. The typical award size for the program is $100,000 per year. Proposals requesting a substantially higher amount than this, without prior consultation with the Program director, may be returned without review. Small equipment proposals up to $70,000 will also be considered and may be submitted during the annual proposal submission window.

**Awards**: Typical Grants $100k per year; CAREER, RAPID and EAGER

**Letter of Intent**: Please contact the Program Director

**Deadlines**: Full Proposal Window: October 1, 2015 – October 20, 2015

**Contact**: Rajakkannu Mutharasan rmuthara@nsf.gov (703) 292-4608

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**Grant Program**: Biotechnology and Biochemical Engineering

**Agency**: National Science Foundation NSF PD 15-1491


**Brief Description**: The *Biotechnology and Biochemical Engineering (BBE)* program supports fundamental engineering research that advances the understanding of cellular and biomolecular processes in engineering biology and eventually leads to the development of enabling technology for advanced manufacturing and/or applications in support of the biopharmaceutical, biotechnology, and bioenergy industries, or with applications in health or the environment. A quantitative treatment of biological and engineering problems of biological processes is considered vital to successful research projects in the BBE program. Fundamental to many research projects in this area is the understanding of how biomolecules, cells and cell populations interact in their environment, and how those molecular level interactions lead to changes in structure, function, phenotype, and/or behavior. The program encourages highly innovative and potentially transformative engineering research leading to novel bioprocessing and manufacturing approaches, and proposals that address emerging
research areas and technologies that effectively integrate knowledge and practices from different disciplines while incorporating ongoing research into educational activities.

Major areas of interest in the program include:

- Metabolic engineering and synthetic biology for biomanufacturing
- Quantitative systems biotechnology
- Tissue engineering and stem cell culture technologies
- Protein engineering & design
- Single cell dynamics and modeling
- Development of novel "omics" tools for biotechnology applications

NOTE: For proposals involving any aspect of sustainable chemistry and engineering, including but not limited to biochemistry or physical chemistry, consider making proposal submissions to this program (1491) with the Proposal Title as: ‘SusChEM: Title of Your Proposal’. For more information on SusChEM-related proposals visit [this link](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501029&org=NSF&sel_org=NSF&from=fund).

The duration of unsolicited awards is generally one to three years. The typical award size for the program is around $100,000 per year with allowance for up to $200,000 per year for collaborative projects or those involving multiple investigators. Proposals requesting a substantially higher amount than this, without prior consultation with the Program Director, may be returned without review.

**Awards:** Typical Grants $100k - $200k per year; CAREER, RAPID and EAGER

**Letter of Intent:** Please contact the Program Director

**Deadlines:** Full Proposal Window: October 1, 2015 – October 20, 2015

**Contact:** William Olbricht  wolbrich@nsf.gov  (703) 292-2563

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**Grant Program: Environmental Engineering**

**Agency:** National Science Foundation NSF PD 15-1440


**Brief Description:** The goal of the Environmental Engineering program is to encourage transformative research which applies scientific and engineering principles to avoid or minimize solid, liquid, and gaseous discharges, resulting from human activities on land, inland and coastal waters, and air, while promoting resource and energy conservation and recovery. The program also fosters cutting-edge scientific research for identifying, evaluating, and monitoring the waste assimilative capacity of the natural environment and for removing or reducing contaminants from polluted air, water, and soils. Any proposal investigating sensors, materials or devices that does not integrate these products with an environmental engineering activity or area of research may be returned without review.

Major areas of interest include:

- **Enhancing the availability of high quality water supplies:** Development of innovative biological, chemical and physical treatment processes to meet the growing demand for water; investigation of processes that remove and degrade contaminants, remediate contaminated soil and groundwater, and convert wastewaters into water suitable for reuse; investigation of environmental engineering aspects of urban watersheds, reservoirs, estuaries and storm water management; investigation of biogeochemical and transport processes driving water quality in the aquatic and subsurface environment. (Please note that research targeting the chemical or physical...
separation process should be submitted to the Chemical and Biological Separations Program, CBET 1417).

- **Fate and transport of contaminants of emerging concern in air, water, and soils:** Investigate the fate, transport and remediation of potentially harmful contaminants and their by-products. (Please note that research concerning the environmental health and safety of nanomaterials should be submitted to the Nano-Bio Phenomena andProcesses in the Environment program, CBET 1179).

**NOTE:** For proposals involving any aspect of chemistry, including but not limited to biochemistry or physical chemistry, consider making proposal submissions to this program (1440) with the Proposal Title as: ‘SusChEM: Title of Your Proposal’. For more information on SusChEM-related proposals click here. The same applies for proposals involving sustainable engineering.

The duration of unsolicited awards is generally one to three years. The typical annual award size for the program is around $100,000. Principal Investigators requesting a substantially higher amount must consult with the Program Director prior to the submission of a proposal, to avoid the possibility of the proposal being returned without review.

**Awards:** Typical Grants $100k - $200k per year; CAREER, RAPID and EAGER

**Letter of Intent:** Please contact the Program Director

**Deadlines:** Full Proposal Window: October 1, 2015 – October 20, 2015

**Contact:** William Cooper wjcooper@nsf.gov (703) 292-5356

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**Grant Program:** Chemical and Biological Separations

**Agency:** National Science Foundation NSF PD 15-1417

**RFP Website:**

**Brief Description:** The goal of the Chemical and Biological Separations (CBS) program is to generate novel methods and materials for separation processes. These processes are central to the chemical, biochemical, materials, energy, and pharmaceutical industries. A fundamental understanding of the interfacial, transport, and thermodynamic behavior of multiphase chemical systems as well as quantitative descriptions of processing characteristics in the process-oriented industries is critical for efficient resource management and effective environmental protection. The program encourages proposals that address emerging research areas and technologies, have a high degree of interdisciplinary work coupled with the generation of fundamental knowledge, and the integration of education and research.

Research topics of particular interest include fundamental molecular-level work on:

- Nanostructured materials for separations
- Biorenewable resource separation processes
- Purification of drinking water
- Field (flow, magnetic, electrical) induced separations

Separation of molecular constituents from blood.

**NOTE:** For proposals involving any aspect of chemistry, including but not limited to biochemistry or physical chemistry, consider making proposal submissions to this program (1440) with the Proposal Title as: ‘SusChEM: Title of Your Proposal’. For more information on SusChEM-related proposals click here. The same applies for proposals involving sustainable engineering.
The duration of unsolicited awards is generally one to three years. The typical annual award size for the program is around $100,000. Principal Investigators requesting a substantially higher amount must consult with the Program Director prior to the submission of a proposal, to avoid the possibility of the proposal being returned without review.  

**Awards:** Typical Grants $100k - $200k per year; CAREER, RAPID and EAGER  

**Letter of Intent:** Please contact the Program Director  

**Deadlines:** Full Proposal Window: October 1, 2015 – October 20, 2015  

**Contact:** Carole Read cread@nsf.gov (703) 292-2418  

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**Grant Program: Biomedical Engineering (BME)**  
**Agency:** National Science Foundation NSF PD 15-1543  
**RFP Website:**  

**Brief Description:** The goal of the Biomedical Engineering (BME) program is to provide opportunities to develop novel ideas into discovery-level and transformative projects that integrate engineering and life sciences in solving biomedical problems that serve humanity in the long-term. BME projects must be at the interface of engineering and life sciences, and advance both engineering and life sciences. The projects should focus on high impact transformative methods and technologies. Projects should include methods, models and enabling tools of understanding and controlling living systems; fundamental improvements in deriving information from cells, tissues, organs, and organ systems; new approaches to the design of structures and materials for eventual medical use in the long-term; and novel methods for reducing health care costs through new technologies.

The long-term impact of the projects can be related to fundamental understanding of cell and tissue function, effective disease diagnosis and/or treatment, improved health care delivery, or product development. The BME program does not support clinical studies, or proposals having as their central theme drug design and delivery or the development of biomedical devices that do not include a living biological component. Furthermore, although research on biomaterials or cellular biomechanics may constitute a part of the proposed studies, such research cannot be the central theme or key focus area of the proposed work.

- **Molecular, cellular and tissue approaches for advanced biomanufacturing:** three-dimensional structures of biomolecules, cells, scaffolds/matrices by bioprinting or other technologies for fundamental studies on cells, disease modeling and drug testing, and for tissue engineering and regenerative medicine applications; fundamental studies of cell-cell, cell-matrix interactions, self-assembly; systems integration between biological components and electromechanical assemblies; cellular biomanufacturing, including stem cell engineering and reprogramming technologies, and cellular immunotherapies.

- **Neural engineering and brain mapping:** technologies and tools to interrogate and monitor neuron activity at the molecular, cellular and neural network levels; new experimental methodologies and computational approaches to investigate brain structure and function, especially at the sub-cellular, cellular, and tissue levels, and to understand the interactions of the neural component of the brain with proximal and distant tissues; and to repair and renew deteriorated, damaged, or diseased neurons and neural circuits, especially of the central nervous system.
Special BME Requirement: On the last line of the project summary page for unsolicited and CAREER proposals, the PI should write the BME theme(s) that he/she is submitting the proposal for (check the two themes stated above to determine the BME theme(s) for your proposal).

Innovative proposals outside of these specific interest areas may be considered. However, prior to submission, it is strongly recommended that the PI contacts the Program Director to avoid the possibility of the proposal being returned without review.

The duration of unsolicited awards is generally one to three years. The typical award size for the program is around $100,000 per year with allowance for up to $200,000 per year for collaborative projects or those involving multiple investigators. Proposals requesting a substantially higher amount than this, without prior consultation with the Program Director, may be returned without review

**Awards:** Typical Grants $100k - $200k per year; CAREER, RAPID and EAGER

**Letter of Intent:** Please contact the Program Director

**Deadlines:** Full Proposal Window: October 1, 2015 – October 20, 2015

**Contact:** Athanassios Sambani asambani@nsf.gov (703) 292-2161

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**Grant Program:** Nano-Bio Phenomena and Processes in the Environment  
**Agency:** National Science Foundation NSF PD 15-1179

**RFP Website:**  

**Brief Description:** The goal of the **Nano-Bio Phenomena and Processes in the Environment (NPPE)** program is to support research to further fundamental and quantitative understanding of the interactions of biological and ecological media with nanostructured materials and nanosystems, which include one- to three-dimensional nanostructured materials and heterogeneous nano-bio hybrid assemblies. Such nanostructured materials and systems frequently exhibit novel physical, chemical and biological behavior in living systems and ecological matrices as compared to the bulk scale. This program supports research that explores the interaction of nanoscale materials and systems with both macro and nano-scale systems in biological and environmental media, as well as remediation solutions.

Proposals submitted to NPPE should address one or more of the following research areas:

- Characterization and exploration of interactions at the interfaces between nanostructure materials and nanosystems with surrounding biological and ecological media, including complex and heterogeneous composites;
- Development of predictive tools that are based on fundamental behavior of nanostructures within biological and ecological matrices to advance cost-effective and environmentally benign processing and engineering solutions over full life cycles;
- Examining the transport, interaction, and impact of nanostructured materials and nanosystems on biological systems;
- Complex simulations of molecular systems at interfaces, with these simulations done in conjunction with experimental comparisons, and new theories and complex simulation approaches for determining the transport and transformation of nanoparticles in various media.

The design of optimal chemical, electronic, photonic, biological, and mechanical properties of nanostructured materials and heterogeneous nanosystems for their safe handling,
management, and utilization will require elucidation of these topics. It is expected that the research will support safe manufacturing, handling and utilization of nanostructures, development of measurement tools and predictive simulation approaches, improved assessment of transport and transformations of environmental nanomaterials (ENMs) in various environmental media and over full life cycles in various media, and development of principles for establishing robust risk assessment and management for nanostructured materials and nanosystems.

Innovative proposals outside of these specific interest areas may be considered. However, prior to submission, it is recommended that the PI contact the Program Director to avoid the possibility of the proposal being returned without review.

The duration of unsolicited awards is generally one to three years. The typical award size for the program is around $100,000 per year with allowance for up to $200,000 per year for collaborative projects or those involving multiple investigators. Proposals requesting a substantially higher amount than this, without prior consultation with the Program Director, may be returned without review.

**Awards:** Typical Grants $100k - $200k per year; CAREER, RAPID and EAGER

**Letter of Intent:** Please contact the Program Director

**Deadlines:** Full Proposal Window: October 1, 2015 – October 20, 2015

**Contact:** Nora F. Savage  nosavage@nsf.gov  (703) 292-7949

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**National Institutes of Health**

**Grant Program:** BRAIN Initiative: Theories, Models and Methods for Analysis of Complex Data from the Brain (R01)

**Agency:** National Institutes of Health  RFA-EB-15-006


**Brief Description:** The broad goal of The BRAIN InitiativeSM is to understand the circuits and patterns of neural activity that give rise to mental experience and behavior. As stated in the BRAIN 2025 Report (II.5), “Theory, Modeling, and Statistics Will Be Essential to Understanding the Brain.” As advances in neurotechnologies are producing large, complex data sets at an unprecedented rate, novel theoretical and analytical approaches are needed to realize the potential of these rich datasets. Understanding neural circuitry requires an understanding of the algorithms and mechanisms that govern information processing within a circuit and between interacting circuits in the brain as a whole. Informed by rich observations, formalized theoretical frameworks allow researchers to infer general principles of brain function and the algorithms underlying functioning neural circuitry. Theory coupled with mathematical modeling and simulation approaches are needed to identify gaps in knowledge, to drive the systematic collection of the future data (e.g. so that the collected data specifically address the model parameters), and to formulate testable hypotheses of neural circuit mechanisms and how they govern behavioral and cognitive processes. Statistical approaches are needed to conduct formal inference to support or refute a stated theory or hypothesis. Finally, new data analysis methods are needed to detect features in complex data, often spanning multiple modalities and scales, to reveal underlying mechanisms of brain function.

The following reports have inspired the ideas of this FOA (but note that they do not represent or replace the specific goals of the FOA):
This FOA is designed to solicit new theories, ideas and conceptual frameworks; computational models; and mathematical and statistical methods for driving experimental data collection, and analyzing complex data from the nervous system. It is expected that this next generation of analytical tools will be developed such that the wider neuroscience research community can easily share and use them.

Specific topics of interest include, but are not limited to:

**Theories, ideas and conceptual frameworks**

- Theoretical insights into how circuit dynamics depend on the properties of single neurons and their connections. Identify conditions for which insights from small circuits scale to larger circuits. Determine which general rules of circuit function depend on specific biological details of neuronal, non-neuronal and synapse function.
- Theories of how information is encoded in the chemical and electrical activity of neurons to implicate behavior in both short and longer time scales.
- Theories of how ensembles of activity can produce collective state conditions and processes with emergent properties beyond the individual units of activity.
- Theories of how ongoing ensemble activity carries out effortful, deliberate cognitive processes requiring multiple or iterative steps, such as mental imagery, mental spatial navigation, mathematical processing, reasoning, or other cognitive abilities that are specially advanced in humans.
- Theories of how interactions within and between large neural systems and brain areas—encompassing inputs from multiple sensory systems, internal states, memories, goals, constraints, and preferences—drive behavior in humans and animals, including specialized animal models.

**Models and the associated statistical, analytical and numerical methods to integrate information across large temporal and spatial scales in the nervous system.**

- Models and methods that integrate knowledge across multiple levels - connecting cellular properties with anatomical constraints, physiology, and behavior; linking mechanisms of neural activity with biophysical mechanisms; bridging mesoscale neural circuits with macroscale neural populations.
- Models of collective neuronal activity on spatial scales that span individual synapses, neurons, circuits, networks and systems; developing theories of dynamical activity that span timescales of synapses, action potentials, network activity (including attractors and persistent activity) and internal circuit states (including neuropeptides and neuromodulatory systems).
- Formal statistical inference frameworks to conduct network connectivity and causal-inference analyses from different types of neuroscience data such as fMRI, EEG, LFP and multi-site single neuron recordings.
- Uncertainty quantification of the data, parameters and outcomes of predictive multiscale models of the brain, e.g. as a result of sparse data and biological variation across subjects.
- New, interoperable simulation methods for multiscale models; e.g. to couple subcellular to the neuronal networks, to full-brain model scales.

**New methods for complex data analysis**
• Methods to extract fundamental features from large nonlinear, spatio-temporal data sets, including real-time data analysis, e.g. from physiological, behavioral and imaging data.
• Novel implementations of dynamic versions of principal component analysis, including novel implementations of independent component analysis, graphical models and compressed sensing that may be used to dynamically track structure in continuous data, point process data, and combinations of the two.
• Tools to address data dimensionality – correlating lower dimension neural activity among subsets of strategically sampled neuronal populations; analyzing higher dimension data resulting from increased behavioral and stimulus complexity.
• Data fusion and data assimilation methods to combine heterogeneous data and link sparse data with mechanisms.

**Responsiveness Criteria**
• Database curation, annotation and development is not be responsive to this FOA.
• Projects to develop or improve computational infrastructure are not be responsive to this FOA.
• Projects to develop theories and models that do not explicitly state how the theories and models proposed are informed by the underlying neurobiology will be considered non-responsive.

**Awards:** Application budgets not limited, but are expected to range between $150,000 to $250,000 direct costs per year. Investigators are expected to request a budget that is required to accomplish the proposed work.

The NIH BRAIN initiative intends to fund an estimate of 15 to 20 awards, corresponding to a total of up to $6 million for fiscal year 2016

**Letter of Intent:** September 21, 2015

**Deadline:** October 21, 2015, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on this date. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

**Grant Program:** Building towards Statistically-Based Pharmaceutical Quality Standards (U01)

**Agency:** Department of Health and U.S. Food and Drug Administration (FDA)

**RFA-FD-16-003**


**Brief Description:** The goal of this project is to understand the current state of manufacturing variability of pharmaceuticals. Specifically the project will focus on evaluating recently distributed product to determine batch-to-batch and unit-to-unit variability for selected critical quality chemical or physical attributes, like tablet weight, assay, content uniformity, and dissolution, and use the resultant data to characterize the current state of pharmaceutical product variability. Attributes and approaches that would apply to both continuous and discrete data would be desirable, as well as consideration of analytical method variability (e.g., Gage R&R). Dissolution comparison would preferably be a multipoint or statistical test. The project deliverables will advance the understanding of pharmaceutical product variability and aid FDA/CDER policy in defining a useful and reasonable guidance for finished product sampling and release of pharmaceuticals.

**Detailed Description**
Develop a project plan to collect, perform chemical analysis, and analyze results to characterize current manufacturing variability for commercially marketed pharmaceutical products using appropriate sampling approaches and statistical analyses. Factors to characterize the current state of product variability may include, and are not limited to, the range of product dosage forms, manufacturing complexity, types of manufacturing, inter- and intra-batch variability, and analytical method variability. The analysis should result in a characterization of manufacturing variability for tested attributes through statistical quality statements, whether across the entire pharmaceutical industry or defined by subsets identified through analysis.

The plan should specifically include what products and types of products should be collected (e.g., defining recently distributed product), how and where the analyses will be performed, and how the recommended products and analyses will characterize manufacturing variability throughout the pharmaceutical industry and help inform the agency and the industry about best practices for sampling and analysis. The project plan should also include a plan to address unique forms of drug products, such as oral solid dosage modified release. This characterization will be used as one component in the development of guidance for finished product sampling and release of pharmaceuticals. The study may consist of one or multiple phases in order to assess the current state of product variability and provide a characterization of manufacturing variability for all tested products.

**Awards:** Application budgets need to reflect the actual needs of the proposed project and should not exceed the following in total costs (direct and indirect):

- YR 01: $1,000,000
- YR 02: $500,000
- YR 03: $500,000

**Letter of Intent:** Not Required

**Deadline:** October 21, 2015, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on this date. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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**Grant Program:** Small Business Innovation Research (SBIR) to Develop New Methods and Technologies for Assessment of Risk and for Early Diagnosis and Prognosis of Type 1 Diabetes (T1D) (R43/R44)

**Agency:** National Institutes of Health RFA-DK-15-024


**Brief Description:** Early identification of T1D risk and the onset of autoimmunity provide the basis for a variety of major ongoing studies seeking to prevent or delay the disease. Already, research on the natural history of the development of T1D in at-risk neonates has shown that early identification of those at risk can foster early diagnosis of T1D and avoid life-threatening diabetic ketoacidosis (DKA). Also, clinical trials are currently in progress to identify ways to prevent or reverse the autoimmunity of T1D. Investigators have used a combination of islet autoantibody positivity, autoantibody seroconversion, biomarkers of genetic susceptibility, and beta cell functional assays as criteria to select individuals at high risk of developing T1D. However, current technology for identification of at-risk individuals is costly, requires participation of research laboratories, and may not be suitable for public health screening that would ensue should effective preventative interventions be established. Methods for more efficient identification of individuals at risk of T1D who may be eligible for preventative
intervention would include low-cost, high-throughput, accurate and predictive assays/devices that could be used at the point of care level. Application of such technologies could facilitate and expedite testing when effective ways to prevent or delay T1D become available and would be essential for identifying individuals who can benefit from such treatments. Population-based screening of individuals would be required, as the majority of people with newly diagnosed T1D (~70-80%) have no affected relatives. Thus, it is necessary to promote and support novel developments in this field as new biomarkers/assays/devices are needed to improve the identification of individuals at risk of developing T1D, determine prognosis, monitor progression, and assess the efficacy of therapeutic interventions. The development of these technologies would facilitate recruitment for clinical research focused on identifying environmental triggers of T1D, T1D natural history, and interventions to prevent T1D. It will also facilitate clinical implementation of measures subsequently proven effective in delaying or preventing T1D in those at risk. Use of such assays in organ donors could also facilitate provision of autoimmune pancreas to researchers.

Examples of topics relevant to this announcement include but are not limited to:

- Development of techniques or products useful for predicting, preventing or delaying progression of diabetes, including tests for identifying patients at risk, and methods of monitoring disease progression.
- Development of high-throughput assays (reliable, accurate, cost-effective, highly sensitive-specific, standardized, having rapid turnaround time) for autoantibody detection and other autoimmune/inflammatory/metabolic markers for diagnosis and follow up.
- Development of methods to measure changes in the immune status that may be used as markers to follow the immune-modulatory activity and beneficial effect of agents tested in clinical trials for the prevention and/or treatment of T1D.
- Development of non-invasive imaging as well as other methods/biomarkers for the in vivo measurement/evaluation of pancreatic beta cell mass, function, or inflammation for the in vivo diagnosis and prognosis of a pre-diabetic/clinically silent stage and subsequent follow up.
- Development of high-throughput assays based on biologic pathways likely involved in the pathogenesis of diabetes that could be used to develop novel predictive/diagnostic systems/platforms.

**Awards:** Budgets up to $225,000 total costs per project for Phase I and up to $1,500,000 total costs per project for Phase II may be requested for the entire award project period.

**Letter of Intent:** October 18, 2015

**Deadline:** November 19, 2015, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on this date.

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

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**Grant Program:** Alzheimer's Disease Translational Center for Disease Model Resources (U54)

**Agency:** National Institutes of Health RFA-AG-16-014

**Brief Description:** The overarching objective of this initiative is to develop new translational resources and capabilities aimed at bridging the preclinical to clinical development gap posed by the poor reproducibility and translatability of AD animal model efficacy studies. Specifically, this FOA will provide support for: 1) creating the next generation of AD animal models; 2) ensuring the maximal and rapid availability of new models to all researchers (academic and industry) engaged in AD drug development; 3) characterizing and clinico-pathological staging of existing and newly created AD animal models using translatable biomarkers; 4) developing translatable, pharmacodynamics (i.e., target engagement) biomarkers for well validated therapeutic targets; 5) developing and deploying reproducibility strategies such as establishing and implementing guidelines for standardized best practices for the rigorous preclinical testing of AD candidate therapeutics in AD animal models; 6) testing AD candidate therapeutics in AD animal models using standardized best practices; 7) establishing a publically available database housing data generated by the Center. In addition, this initiative will promote the rapid dissemination of animal models to all qualified researchers for their use in preclinical therapy and the transparent reporting of preclinical efficacy testing findings. To achieve these goals the Center will need to bring together experts in genomic sciences, computational biologists, experts in disease biology and animal model development, neuropathologists, electrophysiologists, pharmacologists, biostatisticians and clinicians.

**Specific Areas of Research Interest** include but are not limited to:

- Creating the next generation of AD models (e.g., mice, rats) to be used in pre-clinical applications such as efficacy-testing, safety and toxicity. New models will be created under intellectual property conditions which ensure their maximal and rapid availability to all researchers (academic and industry) engaged in AD drug development;
- Creating new models of LOAD based on newly identified LOAD risk genes (CLU, CR1, CD33, TREM2, BIN1, etc.) and other genetic variants associated with LOAD as they become available;
- Applying genome manipulation strategies, such as CRISPR/Cas9, Talen and Zinc-finger to introduce relevant variants into animal models;
- Introducing humanized forms of novel therapeutic targets discovered and validated through systems biology approaches (e.g., Accelerated Medicines Program-Alzheimer's Disease or AMP-AD projects);
- Using translational bioinformatics to acquire and analyze relevant human data (genomic, other “omic’, environmental exposure, network models etc.) from publicly accessible databases to inform the design of the next generation animal models;
- Conducting comprehensive biomarker analysis centered on high-throughput genomic and gene expression platforms as well as other omics data collected in humans and AD animal models. Cross-validation of animal model end-points with clinical measures in humans will be critical;
- Developing translatable small animal imaging modalities (PET, vMRI, fMRI, MRS, etc) to aid the phenotyping and staging of the new and existing animal models;
- Extensive characterization and clinico-pathological staging of existing AD Tg (including mutant APP, APPXPS1/2 and Tau Tg mice) and newly created AD animal models of LOAD with the corresponding stages of clinical disease using translatable biomarkers;
- Identification and validation of translatable pharmacodynamic (i.e., target engagement) biomarkers using "omics" data (RNAseq, epigenomic profiling, proteomic, metabonomic) collected in humans and AD animal models;
- Developing and implementing reproducibility strategies including guidelines for standardized best practices for the rigorous preclinical testing of AD candidate therapeutics;
- Standardizing protocols for data acquisition and data analysis across AD animal models and humans;
- Conducting preclinical efficacy testing of candidate AD therapeutics in AD models using standardized best practices, data acquisition and analysis protocols;
- Developing and implementing methods for formal failure analyses of preclinical efficacy studies;
- Developing strategies for rapid, open-access dissemination of data, and methodology and, for rapid distribution of animal models for their use in therapy development.

**Awards:** An application may request a budget of up to $3.5 million direct costs per year. Budgets should reflect the actual needs of the proposed project.

**Letter of Intent:** December 11, 2015

**Deadline:** January 11, 2016, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on this date. 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.

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

**Grant Program:** FY15/16 Defense Medical Research and Development Program (DMRDP) DoD DMRDP JPC-1/MSIS

**Agency:** Department of Defense; Defense Health Program: W81XWH-15-DMRDP-MSIS-ATUMN

**RFP Website:**
- [https://cdmrp.org/Program_Announcements_and_Forms/](https://cdmrp.org/Program_Announcements_and_Forms/)

**Brief Description:** The FY16 JPC-1/MSIS ATUMN is seeking research, development, and testing on compensatory/adaptive medical tutor prototype(s). This includes evidence-based sustained learning methodologies that decrease the need for future technology dependence to retain the details of the cognitive processes that assist with patient assessment, clinical reasoning, clinical judgment, and clinical diagnosis and treatment. The tutor must accurately and appropriately understand where the learner is within the learning curve versus the course curricula, objectives, and anticipated outcomes, and understand where the learner needs to go versus the course curricula, objectives, and anticipated outcomes. The tutor must identify viable and course-appropriate route(s) on how to navigate from current position to end position. The proposed tutor needs to continuously evaluate the progress and re-plan/re-route as appropriate versus the course curricula, objectives, and anticipated outcomes. The compensatory/adaptive medical tutor prototype needs to be modular, flexible, robust, and reliable, and needs to incorporate open source/license/architecture. The modularity, flexibility, robustness, and reliability does NOT have to be demonstrated in the prototype, but these capabilities MUST be incorporated into the designs and architecture of the anticipated platform. The pre-proposal/pre-application and proposal/application must disclose any background intellectual property interest in the proposal solution, including but not limited to, current ownership status of the intellectual property, the existence and type of license the applicant holds, or whatever name exists. The proposal/application may disclose the capability and interest in licensing arrangements with the Government if the project is
successful. Refer to the General Submission Instructions, Appendix 3 for additional information. This compensatory/adaptive medical tutor prototype must demonstrate sustainment of the cognitive information that was gained. The content may be domain-specific per the desire of the PI and team, but the PI needs to select a domain that can be related to the military, such as the assessment of shock, traumatic brain injury, mental health assessment, (i.e., post-traumatic stress, substance abuse), musculoskeletal diagnosis and treatment, wound management/debridement, external fixation of fractures, shock management, ventilator management, and advanced emergency care (i.e., lateral canthotomy, cranial decompression). The PI must outline a pilot study concept of the compensatory/adaptive medical tutor prototype in the pre-proposal/pre-application. A detailed protocol must be provided in the full proposal/application, including but not limited to, proposed methodologies, type of recruits, recruitment numbers, anticipated drop-out rate, assessment criteria, inter-rater reliability, intended medical domain(s) (or discipline[s]), control groups, and statistical protocols. 1. The anticipated outcomes of research supported by the FY16 JPC-1/MSIS ATUMN Project are as follows, in no particular order: • A validated list supported by contacts, references, and sources that support the proposed recommendation for sustainment of cognitive knowledge, patient assessment, clinical reasoning, clinical judgment, and clinical diagnosis and treatment intended to be integrated/incorporated into the compensatory/adaptive medical tutor prototype. • A report, document, and/or list of the terminology and respective definitions used for the compensatory/adaptive medical tutor prototype including, but not limited to, the chosen domain, the proposed metrics/evaluation criteria and how they are used to determine where the learner is within the learning curve versus the course curricula, objectives, and anticipated outcomes and understand where the learner needs to go versus the course curricula, objectives, and anticipated outcomes. • A report or document with the information of the open source/license/architecture versus intellectual property components. The report needs to provide information on items such as hardware and software requirements to support the respective components and provide a listing of the most common issues with the proposed components, anticipated updates (if applicable), typical maintenance issues with the proposed components, and intended maintenance fees and schedules with the proprietary components (if applicable). A report or document that describes in detail the fully integrated design that includes items such as modularity, flexibility, robustness, and reliability and provides the proposed timeline that would be needed if such additional modularity, flexibility, robustness, and reliability were indeed added. • The pilot study-specific aims, methodologies, sample and sample size, inter-rater reliability, assessment criteria, analyzed results, conclusions, and potential next-step recommendations. Indicate the proposed duration of sustained cognitive knowledge, patient assessment, clinical reasoning, clinical judgment, and clinical diagnosis and treatment. • A demonstration of the compensatory/adaptive medical tutor prototype; anticipate the demonstration to occur in the National Capital Area/Maryland/Northern Virginia area, but it could occur at a Government organization located in the contiguous United States. • A submitted or presented abstract or a draft or accepted publication.

**Award:** Various; Available Funding: $3,000,000

**Pre-Proposal/Pre-Application Deadline:** 5:00 p.m. Eastern time (ET), September 10, 2015

**Invitation to Submit a Proposal/Application:** October 21, 2015

**Proposal/Application Submission Deadline:** 11:59 p.m. ET, December 17, 2015
Grant Program: Reconstructive Transplant Research (RTR) Program
Agency: Department of Defense; Defense Medical Research and Development Program (DMRDP)
Idea Development Award: W81XWH-15-RTR-IDA
Translational Award: W81XWH-15-RTR-TRA
Concept Award: W81XWH-15-RTR-CA
RFP Website: http://cdmrp.army.mil/funding/dmrdp.shtml

Brief Description: Applications to the Fiscal Year 2015 (FY15) Reconstructive Transplant Research (RTR) Program are being solicited for the Defense Health Agency, Research, Development, and Acquisition (DHA RDA) Directorate, by the U.S. Army Medical Research Acquisition Activity (USAMRAA). As directed by the Office of the Assistant Secretary of Defense for Health Affairs, the DHA RDA Directorate manages and executes the Defense Health Program (DHP) Research, Development, Test, and Evaluation (RDT&E) appropriation. This Program Announcement/Funding Opportunity and subsequent awards will be managed and executed by the Congressionally Directed Medical Research Programs (CDMRP with strategic oversight from Joint Program Committee 8/Clinical and Rehabilitative Medicine Research Program (JPC-8/CRMRP).
The RTR program was initiated in 2012 to fund innovative projects that have the potential to make a significant impact on improving the function, wellness, and overall quality of life for injured military Service members and Veterans, their caregivers and family members, and the American public. Appropriations for the RTR from FY12 through FY14 totaled $30 million (M). The FY15 appropriation is $15M.
The JPC-8/CRMRP mission is to implement long-term strategies to develop knowledge and materiel products to reconstruct, rehabilitate, and provide definitive care for injured Service members. The ultimate goal is to return Service members to duty and restore their quality of life. Through the RTR program, the JPC-8/CRMRP challenges the scientific community to design innovative research that will foster new directions for, and address neglected issues in, the field of reconstructive transplantation (RT), specifically vascularized composite allotransplantation (VCA)-focused research, also known as composite tissue allotransplantation. VCA refers to the transplantation of multiple tissues such as muscle, bone, nerve, and skin, as a functional unit (e.g., a hand or face) from a deceased donor to a recipient with a severe injury. Psychosocial issues are associated with barriers to VCA outcomes and the characterization of appropriate strategies which address psychosocial issues are needed to improve outcomes.

Awards: The maximum period of performance is 2 years.
• _The anticipated total costs (direct and indirect) budgeted for the entire period of performance will not exceed $450,000. Indirect costs are to be budgeted in accordance with the organization’s negotiated rate. No budget will be approved by the Government exceeding $450,000 total costs or using an indirect rate exceeding the organization’s negotiated rate._
• _The applicant may request the entire maximum funding amount for a project that may have a period of performance less than the maximum 2 years._

Letter of Intent: Pre-Application Required
Pre-Application Deadline: 5:00 p.m. Eastern time (ET), September 16, 2015
Application Submission Deadline: October 14, 2015
Grant Program: ROSES 2015: WFIRST Science Investigation Teams and Adjutant Scientists  
Agency: NNH15ZDA001N-WFIRST  
RFP Website:  
http://nspires.nasaprs.com/external/solicitations/summary.do?method=init%26solId=%7B7B76EEBCB6-619A-576D-E763-752A60A46C83%7D%26path=open  
Summary of Solicitations Under ROSES 2015:  
http://nspires.nasaprs.com/external/viewrepositorydocument/cmdocumentid=448094/solicitationId=%7BB0E8D3A7-3474-D7FA-5E98-561F0E0D6757%7D/viewSolicitationDocument=1/C.14%20PSTAR.pdf  
Brief Description: This Program Element is to solicit proposals for Science Investigation Teams (SITs) for the Wide-Field InfraRed Survey Telescope (WFIRST), which will result in the formation of a Formulation Science Working Group (FSWG) for the mission. In addition to the WFIRST SITs, this call solicits an individual to serve as Adjutant Scientist for the WFIRST Wide-Field Instrument (WFI) and another as Adjutant Scientist for the WFIRST Coronagraphic Instrument (CGI).

WFIRST is the top-ranked large space mission recommended by the National Research Council (NRC) decadal survey of astronomy and astrophysics for 2012-2021, *New Worlds, New Horizons in Astronomy and Astrophysics* (NWH, National Academies Press, [http://www.nap.edu/catalog.php?record_id=12951](http://www.nap.edu/catalog.php?record_id=12951)).

WFIRST is currently in a study, or preformulation, phase. NASA has not yet committed to starting WFIRST. The mission timeline described in this solicitation is notional and should be used for the purpose of writing proposals in response to this solicitation. The mission timeline (Section 1.2) and available funding profile (Section 2.5) assume a budget profile for the mission that represents neither a commitment from NASA nor an expectation of future appropriations.

This Program Element does not solicit proposals that would provide science instruments, the development of flight hardware, or ground-system software or other support. NASA does not currently intend to offer a solicitation for WFIRST instruments with a science component, hence scientists interested in participation in WFIRST should consider this to be the only near-term opportunity for such involvement. The intent of this solicitation is to put in place SITs and an FSWG that can support WFIRST science activities during the preformulation and formulation phases through to the critical design review (CDR).

It is anticipated that CDR could occur within five years of the FSWG selection, hence, for planning purposes, proposers shall assume that SIT activities will take place over a five-year term. For the sake of concreteness, the term will be stated as five years throughout this Announcement, but if the date of the CDR changes significantly, then the term of the SITs will be adjusted accordingly. At that time, NASA will decide how to continue or solicit new SITs via a second competition for the implementation and operational phases of WFIRST.

This call solicits the two Adjutant Scientist positions for a term also of five years, during WFIRST preformulation, formulation, and development. The same considerations for activities, term, and continuation/competition as apply to SITs shall apply to Adjutant Scientists.

Awards: The total science team funding for FY 2016 through FY 2020 would be roughly $33M in real-year funds.

Letter of Intent: August 17, 2015

Deadline: Full Proposal Deadline(s): Full Proposal Due: October 15, 2015.