

NJIT Research Newsletter

Issue: ORN-2017-21

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

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14th Annual Conference on Frontiers in Applied and Computational Mathematics (FACM '17) at NJIT

The 14th Annual Conference on Frontiers in Applied and Computational Mathematics (FACM '17) will be held at the New Jersey Institute of Technology (NJIT) in Newark, New Jersey on June 24 - 25, 2017. This year's conference will be broadly focused on mathematics in industry, and is scheduled to follow the 33rd Mathematical Problems in Industry Workshop (MPI) which will be held at NJIT immediately prior to the FACM conference. The minisymposia will focus on a variety of topics involving physical and biological modeling, as well as data science, with applications in a number of different fields.

The conference will consist of plenary presentations, minisymposia, and contributed oral presentations and posters. The plenary talks will be given by

- Jon Chapman, Oxford University
- Jianying Hu, IBM T. J. Watson Research Center
- Greg Luther, Adaptive Optics Associates and Northrop Grumman
- Cleve Moler, MathWorks

Applications for contributed presentations by postdoctoral fellows and students are due by May 15, 2017. Applications by members of underrepresented groups, minorities and women are particularly encouraged. Limited travel support, typically on the level of covering the cost of registration and local accommodation is available. For more information, please see the [conference web page \(https://m.njit.edu/Events/FACM17/\)](https://m.njit.edu/Events/FACM17/).

Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: Advanced Technological Education (ATE); Innovative Technology Experiences for Students and Teachers (ITEST); Centers for Chemical Innovation (CCI) ; Division of Physics: Investigator-Initiated Research Projects (PHY); NSF-Simons Research Centers for Mathematics of Complex Biological Systems (MathBioSys)

NIH: Biomedical Technology Research Resource (P41); Pre-Application for Biomedical Technology Research Resource (X02); Global Brain and Nervous System Disorders Research Across the Lifespan (R01) and (R21); Cellular and Molecular Biology of Complex Brain Disorders (R01) and (R21); NIH StrokeNet Regional Coordinating Stroke Centers (U24); Revision Applications for Regenerative Medicine Innovation Projects (RMIP) (R01)

Department of Defense/US Army/DARPA/ONR: CENTER OF EXCELLENCE: Trusted Human-Machine Teaming; FY2018 Vannevar Bush Faculty Fellowship; Autism Research Program (ARP) Idea Development Award; Office of Naval Research (ONR) Young Investigator Program (YIP); DoD Peer Reviewed Medical Investigator-Initiated Research Award; Spinal Cord Injury Research Program, Investigator-Initiated Research Award

Department of Energy: Technology Development to Ensure Environmentally Sustainable CO2 Injection Operations; Request For Information (RFI): Clean Water Technologies; Request For Applications (RFA) Entitled "Biomass Research And Development Initiative (BRDI)"

NASA: ROSES 2017: New Investigator Program; ROSES 2017: Early Stage Innovation

National Endowment of Humanities: Summer Stipends; Research and Development Grants

Recent Research Grant and Contract Awards

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

PI: Michael Siegal (PI), Michael Booty (Co-PI) and Yuan-Nan Young (Co-PI)

Department: Mathematical Sciences

Grant/Contract Project Title: Supplemental - Numerical Methods and Analysis for Induced-Charge Electrokinetic Flow with Deformable Interfaces

Funding Agency: NSF

Duration: 08/01/14-07/31/18

PI: Edward Dreizen (PI)

Department: Chemical, Biological and Pharmaceutical Engineering

Grant/Contract Project Title: Combustion of Reactive Materials in Gas Flows With Turbulent Mixing

Funding Agency: US DoD

Duration: 04/28/14-06/30/18

PI: Boris Khusid (PI)

Department: Chemical, Biological and Pharmaceutical Engineering

Grant/Contract Project Title: Kinetics of Electric Field-Driven Phase Transitions in Polarized Colloids

Funding Agency: NASA

Duration: 08/23/13-08/22/18

PI: Bipin Rajendran (PI) and Simeone Osvaldo (Co-PI)
Department: Electrical and Computer Engineering
Grant/Contract Project Title: SNNnow: Probabilistic Learning for Deep Spiking Neural Networks: Foundations and Hardware Co-Optimization
Funding Agency: NSF
Duration: 08/01/17-07/30/20

PI: Edward Dreizen (PI)
Department: Chemical, Biological and Pharmaceutical Engineering
Grant/Contract Project Title: Reactive Materials with Burn Rate Adjusted by Initiation Method
Funding Agency: US AFOSR
Duration: 06/15/16-06/14/18

PI: John Federici (PI)
Department: Physics
Grant/Contract Project Title: Assessment of Printed Materials and Electronics Plan
Funding Agency: US Army (Picatinny Arsenal-ARDEC)
Duration: 06/14/17-06/14/18

PI: Somenath Mitra (PI)
Department: Chemistry and Environmental Sciences
Grant/Contract Project Title: Development of Functionalized Nano Carbon Immobilized Membranes for Sea and Brackish Water Desalination
Funding Agency: NSF
Duration: 09/01/16-08/31/19

In the News...

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

House Plan Would Hike Defense, Cut Nondefense Less than Trump: Budget Chair Diane Black (R-Tenn.) is trying to "win the support of House defense hawks, deficit watchers, appropriators, committee chairmen, conservatives and moderates," CQ reports. Her committee "is considering allowing up to \$620 billion in base discretionary defense spending in fiscal 2018 — some \$70 billion above the \$549 billion defense cap that is written into law. The higher figure would represent a compromise between a \$54 billion increase proposed by Trump, which would bring defense spending to \$603 billion, and the \$640 billion that is being sought by defense hawks." The panel is also discussing "a \$511 billion limit on nondefense discretionary spending, lawmakers said. That would fall \$5 billion below the \$516 billion statutory cap." Trump asked Congress to cut nondefense spending by \$54 billion to offset the defense increase. "None of the numbers is final," according to CQ. "Any plan adopted in the Senate would likely be different, in part because of a rule in the Senate that proscribes exceeding the statutory discretionary spending caps."

National Academies (Engineering, Science and Medicine) Report on Undergraduate Research Experience (URE): The Committee on Strengthening Research Experiences for Undergraduate STEM Students of the National Academies (National Academy of Engineering, National Academy of Science and National Academy of Medicine) has strongly recommended

strategic enhancements in external and internal resources for developing more opportunities for engaging undergraduate students in research in educational programs at all levels (https://download.nap.edu/cart/download.cgi?record_id=24622). The report noted the following characteristic benefits from a variety of different types of URE programs. Due to the variation in the types of UREs, not all experiences include all of the following characteristics in the same way; experiences vary in how much a particular characteristic is emphasized.

- They engage students in research practices including the ability to argue from evidence.
- They aim to generate novel information with an emphasis on discovery and innovation or to determine whether recent preliminary results can be replicated.
- They focus on significant, relevant problems of interest to STEM researchers and in some cases a broader community (e.g., civic engagement).
- They emphasize and expect collaboration and teamwork.
- They involve iterative refinement of experimental design, experimental questions, or data obtained.
- They allow students to master specific research techniques.
- They help students engage in reflection about the problems being investigated and the work being undertaken to address those problems.
- They require communication of results, either through publication or presentations in various STEM venues.
- They are structured and guided by a mentor, with students assuming increasing ownership of some aspects of the project over time.

Some of the recommendations made in the report include:

Recommendation 1: Researchers with expertise in education research should conduct well-designed studies in collaboration with URE program directors to improve the evidence base about the processes and effects of UREs.

Recommendation 2: Funders should provide appropriate resources to support the design, implementation, and analysis of some URE programs that are specifically designed to enable detailed research establishing the effects on participant outcomes and on other variables of interest such as the consequences for mentors or institutions.

Recommendation 3: Designers of UREs should base their design decisions on sound evidence.

Recommendation 4: Institutions should collect data on student participation in UREs to inform their planning and to look for opportunities to improve quality and access.

Recommendation 5: Administrators and faculty at all types of colleges and universities should continually and holistically evaluate the range of UREs that they offer.

Full report is available on the website

https://download.nap.edu/cart/download.cgi?record_id=24622.

NSF Policy and Awards Update (May 2017): NSF Pilots a New Collaborator and Other Affiliations Template: Last month NSF began piloting a new format for submitting Collaborators and Other Affiliations Information in FastLane. Proposers are required to include collaborators and other affiliations information for principal investigators (PIs), co-PIs and other senior project personnel. NSF uses this information to manage reviewer selection. The pilot standardizes the collection of this data across the Foundation and ensures that the information is submitted in a searchable format. This reduces the burden on NSF program staff who currently must spend time manipulating non-searchable files. Likewise, for the community, proposers can rest assured knowing that their format is acceptable to NSF. The new format requires PIs, co-PIs and other senior project personnel who are identified on the proposal to individually upload their

Collaborators and Other Affiliations Information as a Single Copy Document which are only seen by NSF staff and not by reviewers.

Proposers will be directed to the new spreadsheet template while in FastLane. The template is fillable, and the content and format requirements must not be altered by the user. Proposers should not convert the file to PDF format prior to submitting the proposal to NSF, rather it should be completed and saved in .xlsx or .xls format to ensure preservation of searchable text, and uploaded into FastLane as a Single Copy Document. Using any other file format may delay the timely processing and review of the proposal. The template has been tested in Microsoft Excel, Google Sheets and LibreOffice. In addition to benefiting the merit review process, this template provides a compliant and reusable format for PIs to maintain and update for use in subsequent proposal submissions to NSF. The new Collaborators and Other Affiliations pilot only applies to FastLane proposal submissions. Grants.gov proposal submissions shall continue to follow the instructions in the Grants.gov Application Guide, Chapter VI. 2.4.

More information on

https://www.nsf.gov/pubs/2017/nsf17084/nsf17084.pdf?WT.mc_id=USNSF_109

NSF Policy and Awards Update (May 2017): NSF Research Terms and Conditions (RTC):

Implementation: the revised Research Terms and Conditions (RTCs) have been made available to research agencies for use with research and research-related awards. The RTCs address and implement the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 CFR 200). The RTCs incorporate the entire Uniform Guidance by reference and clarify or supplement existing provisions where appropriate. They further incorporate by reference the most recent Office of Management and Budget (OMB) FAQs (<https://cfo.gov/cofar/cofar-resources/>) in the Uniform Guidance. Pertinent sections of the Uniform Guidance are presented on the left side, and clarifications for research and research-related awards on the right. More information is posted on CFO-United States website <https://cfo.gov/cofar/cofar-resources/>

Webinar and Events

Event: NSF Webinar: Confidentiality à la Carte with Cipherbase

When: June 22, 2017; 12.00 PM – 1.00 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=242159&org=NSF

About the Webinar: Organizations move data and workloads to the cloud because the cloud is cheaper, more agile, and more secure. Unfortunately, the cloud is not perfect and there are some fundamental tradeoffs that need to be made in the cloud. The Cipherbase project studies the tradeoffs between confidentiality and functionality that arise when state-of-the-art cryptography is combined with databases in the cloud: The more operations that are supported on encrypted data, the more information that can be leaked unintentionally. There has been a great deal of work studying these tradeoffs in the specific context of property-preserving encryption techniques. For instance, deterministic encryption can support equality predicates directly over encrypted data, but it is also vulnerable to inference attacks. This talk discusses the tradeoffs that arise in a more general context when trusted computing platforms such as FPGAs or Intel SGX technology are used to process encrypted data.

Speaker: Donald Kossmann is the director of the Microsoft Research Lab in Redmond. He joined Microsoft in 2014. Before that, he was a professor in the Systems Group of the Department of

Computer Science at ETH Zurich (Switzerland). He is the Chair of ACM SIGMOD and an ACM Fellow. He is a co-founder of four start-ups in the areas of Web data management and cloud computing.

Register at: <http://www.tvworldwide.com/events/nsf/170622/>

Grant Opportunities

National Science Foundation

Grant Program: Advanced Technological Education (ATE)

Agency: National Science Foundation NSF 17-568

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17568/nsf17568.htm#elig>

Brief Description: With an emphasis on two-year colleges, the Advanced Technological Education (ATE) program focuses on the education of technicians for the high-technology fields that drive our nation's economy. The program involves partnerships between academic institutions and industry to promote improvement in the education of science and engineering technicians at the undergraduate and secondary school levels. The ATE program supports curriculum development; professional development of college faculty and secondary school teachers; career pathways; and other activities. The program invites research proposals that advance the knowledge base related to technician education. It is expected that projects be faculty driven and that courses and programs are credit bearing although materials developed may also be used for incumbent worker education.

The ATE program encourages partnerships with other entities that may impact technician education. For example, with

- the National Institute of Standards and Technology (NIST) Manufacturing Extension Partnerships (MEPs) <http://www.nist.gov/mep/index.cfm> as applicable to support technician education programs and the industries they serve;
- Manufacturing USA Institutes <https://manufacturing.gov/nnmi-institutes/> and Investing in Manufacturing Communities of Practice (IMCPs) <https://www.eda.gov/imcp/> addressing workforce development issues (also see DCL [NSF 16-007](#)); and
- NSF Industry & University Cooperative Research Program (I/UCRC) awardees. <https://www.nsf.gov/eng/iip/iucrc/>.

The ATE program encourages proposals from Minority Serving Institutions and other institutions that support the recruitment, retention, and completion of students underrepresented in STEM in technician education programs that award associate degrees. NSF is particularly interested in proposals from all types of Minority Serving Institutions (including Hispanic Serving Institutions, Historically Black Colleges and Universities, Tribal Colleges and Universities, and Alaska Native and Native Hawaiian Serving Institutions) where the proportion of underrepresented students interested in advanced technology careers is growing.

Awards: Standard Grants. **Anticipated Funding Amount:** \$59,000,000

Letter of Intent: Not Required

Proposal Submission Due Date: October 05, 2017

Contacts: . Celeste Carter, Lead Program Director, DUE, 830 S, telephone: (703) 292-4651, email: vcarter@nsf.gov

- David B. Campbell, Lead Program Director, DRL, 885 S, telephone: (703) 292-5093, email: dcampbel@nsf.gov
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Grant Program: Innovative Technology Experiences for Students and Teachers (ITEST)**Agency: National Science Foundation NSF 17-565****RFP Website:** <https://www.nsf.gov/pubs/2017/nsf17565/nsf17565.htm>

Brief Description: As the nation continues to expand the horizon of opportunities and possibilities through advances in science, technology, engineering and mathematics (STEM), the need for a more diverse and well-prepared STEM workforce is also expanding¹. The challenge of preparing citizens for the expanding workforce and the changing workplace environments calls for new innovations in STEM education². ITEST is a research and development program that supports projects to promote PreK-12 student interests and capacities to participate in the STEM and information and communications technology (ICT) workforce of the future. The ITEST program supports research on the design, development, implementation, and selective spread of innovative strategies for engaging students in technology-rich experiences that: (1) increase student awareness of STEM occupations; (2) motivate students to pursue appropriate education pathways to STEM occupations; or (3) develop disciplinary-based knowledge and practices, or promote critical thinking, reasoning skills, or communication skills needed for entering STEM workforce sectors. ITEST projects may adopt an interdisciplinary focus that includes multiple STEM disciplines, focus on a single discipline, or focus on one or more sub-disciplines. The ITEST program supports projects that provide evidence for factors, instructional designs, and practices in formal and informal learning environments that broaden participation of students from underrepresented groups in STEM fields and related education and workforce domains. Projects that actively engage business and industry partners to better ensure that PreK-12 experiences foster the knowledge and skill-sets needed for emerging STEM occupations are strongly encouraged.

Awards: Standard Grants. **Anticipated Funding Amount:** \$20,000,000. Depending on the availability of funds, ITEST anticipates making approximately 2-4 Exploratory awards with durations up to two years and total budgets up to \$400,000 each, 6-12 Strategies awards with durations up to three years and total budgets up to \$1,200,000 each, and 1-2 SPReaD (Successful Project Expansion and Dissemination) awards with durations of three to five years and total budgets up to \$2,000,000 each.

Letter of Intent: Not Required

Proposal Submission Due Date: September 05, 2017

Contacts: Address general questions to, telephone: (703) 292-8628, email: DRLITEST@nsf.gov

- David L. Haury, telephone: (703) 292-5102, email: dhaury@nsf.gov
- Amy L. Baylor, telephone: (703) 292-5126, email: abaylor@nsf.gov
- David B. Campbell, telephone: (703) 292-5093, email: dcampbel@nsf.gov

Grant Program: Centers for Chemical Innovation (CCI)**Agency: National Science Foundation NSF 17-564****RFP Website:** <https://www.nsf.gov/pubs/2017/nsf17564/nsf17564.htm>

Brief Description: The Centers for Chemical Innovation (CCI) Program supports research centers focused on major, long-term fundamental chemical research challenges. CCIs that address these challenges will produce transformative research, lead to innovation, and attract broad scientific and public interest. CCIs are agile structures that can respond rapidly to emerging opportunities through enhanced collaborations. CCIs integrate research, innovation, education, broadening participation, and informal science communication.

The FY 2018 Phase I CCI competition is open to projects in all fields supported by the Division of Chemistry, and must have focus and the potential for transformative impact in chemistry. *NSF Chemistry particularly encourages projects in Data-Driven Discovery Science in Chemistry (D3SC).*

The CCI Program is a two-phase program. Both phases are described in this solicitation. Phase I CCIs receive significant resources to develop the science, management and broader impacts of a major research center before requesting Phase II funding. Satisfactory progress in Phase I is required for Phase II applications; Phase I proposals funded in FY 2018 will seek Phase II funding in FY 2021. This solicitation also covers the renewal application of the Phase II CCI initiated in FY 2013: CAICE, led by the University of California San Diego.

Awards: Standard Grants. **Anticipated Funding Amount:** \$9,400,000.

Letter of Intent: Not Required

Preliminary Phase-1 Proposal: September 12, 2017

Full Proposal Submission Due Date: March 06, 2018: Phase I Full Proposals, by invitation only

- **Contacts:** Katharine J. Covert, telephone: (703) 292-4950, email: kcovert@nsf.gov
- Lin He, telephone: (703) 292-4956, email: lhe@nsf.gov

Grant Program: Division of Physics: Investigator-Initiated Research Projects (PHY)

Agency: National Science Foundation NSF 17-561

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17561/nsf17561.htm>

Brief Description: The Division of Physics (PHY) supports physics research and the preparation of future scientists in the nation's colleges and universities across a broad range of physics disciplines that span scales of space and time from the largest to the smallest and the oldest to the youngest. The Division is comprised of disciplinary programs covering experimental and theoretical research in the following major subfields of physics: Accelerator Science; Atomic, Molecular and Optical Physics; Computational Physics; Elementary Particle Physics; Gravitational Physics; Integrative Activities in Physics; Nuclear Physics; Particle Astrophysics; Physics of Living Systems; Plasma Physics (supported under a separate solicitation); and Quantum Information Science.

Additional Information

The Physics Division strongly encourages single proposal submission for possible co-review rather than multiple submissions of proposals with slight differences to several programs.

Awards: Standard Grants. **Anticipated Funding Amount:** \$90,000,000.

Letter of Intent: Not Required

Full Proposal Submission Due Date: Various depending on the area;

October 25, 2017 for Atomic, Molecular & Optical Physics - Experiment & Theory; Elementary Particle Physics - Experiment; Gravitational Physics - Experiment & Theory; Integrative Activities in Physics; LIGO Research Support; Particle Astrophysics - Experiment; Physics of Living System

Contacts: Krastan B. Blagoev, Physics of Living Systems, telephone: (703) 292-4666, email: kblagoev@nsf.gov

Michael J. Cavagnero, Atomic, Molecular and Optical Physics - Theory, telephone: (703) 292-2163, email: mcavagne@nsf.gov

Mark Coles, Projects and Facilities, telephone: (703) 292-4432, email: mcoles@nsf.gov

Jean Cottam Allen, Particle Astrophysics (Cosmic Phenomena) - Experiment, telephone: (703) 292-8783, email: jcallen@nsf.gov

Grant Program: NSF-Simons Research Centers for Mathematics of Complex Biological Systems (MathBioSys)

Agency: National Science Foundation NSF 17-560

RFP Website: <https://www.nsf.gov/pubs/2017/nsf17560/nsf17560.htm>

Brief Description: The purpose of the NSF-Simons Research Centers for Mathematics of Complex Biological Systems (MathBioSys) is to enable innovative collaborative research at the intersection of mathematics and molecular, cellular and organismal biology, to establish new connections between these two disciplines, and to promote interdisciplinary education and workforce training. The National Science Foundation Directorates for Mathematical and Physical Sciences (MPS) and for Biological Sciences (BIO) and the Simons Foundation Division of Mathematics and the Physical Sciences (MPS) and Division of Life Sciences shall jointly sponsor up to three new research centers to facilitate collaborations among groups of mathematicians, statisticians, and biologists. Research activities conducted at each center will be focused on a particular set of topics at the interface of the mathematical sciences with molecular, cellular, and organismal biology. Each center will conduct interdisciplinary education and training through research involvement of recent doctoral degree recipients and graduate students from across this multi-disciplinary spectrum. Each center is also expected to conduct convening activities, including short-term and/or long-term visitors programs, workshops, and/or outreach activities. These centers will have annual meetings of the Principal Investigators (PIs) and other principal researchers, held at the Simons Foundation in New York City.

Awards: Continuing Grants. **Anticipated Funding Amount:** \$30,000,000.

Letter of Intent: Not Required

Full Proposal Submission Due Date: Proposals Accepted Anytime

- **Contacts:** Ary Ann Horn, Directorate for Mathematical and Physical Sciences, NSF, telephone: (703) 292-4879, email: mhorn@nsf.gov
- Arcady Mushegian, Directorate for Biological Sciences, NSF, telephone: (703) 292-8528, email: amushegi@nsf.gov

National Institutes of Health

Grant Program: Biomedical Technology Research Resource (P41)

Agency: National Institutes of Health PAR-17-316

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-17-316.html>

Brief Description: This Funding Opportunity Announcement (FOA) will support Biomedical Technology Research Resources (BTRRs) in a variety of areas of biomedical science. (BTRR and Resource are used interchangeably throughout this FOA.) The program has recently been evaluated and the final report is available on the NIGMS BTRR home page (<https://publications.nigms.nih.gov/btrrs/searchresults.asp>). Several important changes have been made to simplify and clarify the application and review process, and to improve the flexibility of individual Resources and the program as a whole. The program continues to focus on two goals: the development of enabling technologies, and sustainable access to those technologies for the research community. These goals are addressed through three components of each center: Technology Research and Development (TR&D), Driving Biomedical Projects (DBPs), and Community Engagement (CE).

Technology Research and Development (TR&D) is the central activity of a BTRR. Research teams create critical, often unique, technologies at the forefront of their respective fields. In support of that mission, the Resources are structured to foster two kinds of

collaborations: dynamic, short-term Technology Development Partnerships (Partnerships) with other technology developers, where appropriate, will enable the Resource to adopt and incorporate emerging capabilities in rapidly evolving fields. BTRR investigators must be able to recognize significant parallel contributions by other technology developers, determine whether collaboration is appropriate, and if so, establish mutually beneficial partnerships. While a BTRR is expected to operate at the leading edge of a technology area, it is important to recognize and exploit advances emerging from other academic research groups.

Similarly, Driving Biomedical Projects (DBPs) are biomedical research test-beds that allow BTRR investigators to test nascent technologies in the context of challenging problems in basic, translational, and clinical research, while providing biomedical researchers with the earliest possible access to these emerging tools. A deep understanding of needs and opportunities in the relevant areas of biomedical research is an essential prerequisite for all technology development. In a BTRR, this understanding is most clearly expressed through successful engagement of those researchers best positioned to benefit from early access to emerging tools.

BTRR investigators are expected to actively engage both researchers who are developing technologies relevant to the Resource's mission, and the scientists in the community whose research may benefit from these emerging technologies. However, the BTRR should not merely integrate and offer access to technologies developed elsewhere. A BTRR is expected to develop leading technologies that will significantly impact a broad community of biomedical researchers, and through leadership within the relevant communities, support the integration of those technologies into the larger context of the relevant field. A successful BTRR will establish and maintain a leading role in the development and early application of important enabling technologies. NIGMS expects that most Research Resources will not be renewed beyond three cycles.

The relatively stable and substantial support of a BTRR allows researchers to address the full range of technology development, including early stage, high risk projects, iterative improvement in the context of challenging real-world problems, and the refinement and optimization of technologies to improve performance and promote the broadest possible dissemination and adoption. The success of BTRR-supported technology development is ultimately measured by adoption in the broader biomedical research community. It is essential that technology development be carried through to completion, including the optimization and dissemination of tools with strong potential for continued impact.

The technology development mission of a BTRR should be characterized by a focus on genuine completion of the development cycle for each promising technology, in a timely manner, and a drive toward obsolescence of the BTRR through ubiquity of the developed technology within the community.

Awards: The maximum budget that may be requested is \$800,000 in recurring direct costs, excluding equipment. Applications requesting more than this amount in recurring costs will not be reviewed. Because of the technology-intensive nature of these Resources, there may be a need to acquire specialized equipment. Equipment requests are expected to vary with the nature of the technology development projects proposed. Funds for such specialized equipment may be requested in excess of the \$800,000 operating limit if well justified.

Letter of Intent: Not required

Deadline: September 25, 2017; January 25, 2018; May 25, 2018; January 25, 2019; May 25, 2019; and January 25, 2020, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

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

Grant Program: Pre-application for a Biomedical Technology Research Resource (X02)

Agency: National Institutes of Health PAR-17-315

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-17-315.html>

Brief Description: This announcement encourages pre-applications for the creation of national Biomedical Technology Research Resources (BTRRs). These Resources develop new or improved technology driven by the needs of basic, translational, and clinical researchers. The BTRRs are charged to make their technologies available to the biomedical research community, to train members of this community in the use of the technologies, and to disseminate both the technologies and the Resource's experimental results broadly.

The X02 pre-application is the recommended first step in the application process for a new BTRR application. Potential applicants should read both FOAs. A pre-application can help applicants focus and refine their ideas and determine whether a BTRR is the appropriate means to support the work they have in mind. Investigators whose X02 pre-applications are judged to be meritorious and programmatically relevant will be notified of the opportunity to submit a full BTRR application under [PAR-17-316](#).

The X02 pre-application is the recommended first step in the application process for a new Biomedical Technology Research Resource (BTRR) application. Investigators whose X02 pre-applications are judged to be meritorious and programmatically relevant will be notified of the opportunity to submit a full BTRR application under [PAR-17-316](#) Potential applicants should read both the X02 and P41 FOAs. The National Institute of General Medical Sciences (NIGMS) uses the P41 mechanism to support BTRRs in a variety of areas of biomedical science. (BTRR and Resource are used interchangeably throughout this text.)

The NIGMS BTRR program has recently been evaluated and the final report is available on the NIGMS BTRR web page (<https://publications.nigms.nih.gov/btrrs/searchresults.asp>). Several important changes have been made to simplify and clarify the application and review process, and to improve the flexibility of individual Resources and the overall program. The program continues to focus on two goals: the development of enabling technologies, and sustainable access to those technologies for the research community. These goals are addressed through three components of each center: Technology Research and Development (TR&D), Driving Biomedical Projects (DBPs), and Community Engagement (CE).

New applicants are strongly encouraged to submit a pre-application in response to this announcement. The pre-application process provides feedback regarding appropriateness for this program and competitiveness of a potential application.

Awards: No awards will be made in response to this announcement.

Letter of Intent: Not required

Deadline: August 15, 2017; March 15, 2018; July 17, 2018; March 15, 2019; July 15, 2019; and March 15, 2020, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

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

Grant Program: Global Brain and Nervous System Disorders Research Across the Lifespan (R01) and (R21)

Agency: National Institutes of Health PAR-17-314

Companion Opportunity: [PAR-17-313 R21](#) Exploratory/Developmental Grant

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-17-314.html>

Brief Description: Relevant research topics for this FOA are related to nervous system function and/or impairment from birth to advanced age and across generations, and must be relevant to the collaborating LMICs. Applicants are especially encouraged to propose research on co-morbidities and conditions that affect nervous system function at different life stages, as well as across the lifespan. Relevant research for these applications may range from basic science to epidemiological, clinical, health services, translational (e.g. translation of basic research to therapy and of clinical research to applications in the field) and implementation research. Applicants may propose a research and capacity building program on some aspect of nervous system function and/or impairment at any stage of life.

Examples of nervous system disorders contributing to the burden of disease in LMICs and relevant to this FOA include, but are not limited to, neurodevelopmental disorders (including autism, cerebral palsy, fetal alcohol syndrome, learning disabilities, hydrocephaly, microcephaly), neurodegenerative diseases (such as Alzheimer's and Parkinson's Diseases), addictive disorders, seizure disorders (such as epilepsy), neuropsychiatric disorders (such as unipolar depression, bipolar disorder, schizophrenia), posttraumatic stress disorder, dementias, encephalopathy, peripheral neuropathies, sensory and motor neuron diseases.

Examples of influences on nervous system function across the lifespan include, but are not limited to: genetic predispositions and epigenetic changes in response to pre-, peri- and post-natal trauma and environmental factors (such as maternal depression, in-utero drug and alcohol exposure, neurotoxic insults, perinatal hypoxia, child abuse and neglect, inadequate environmental stimulation, and nutritional deficiencies), physical and psychological trauma (exposure to violence, sexual and physical abuse, traumatic nervous system injury due to violence and accidents), infection of the nervous system by bacterial, viral and parasitic diseases (such as Zika, HIV/AIDS, malaria, neurocysticercosis, neonatal sepsis) and stroke. Other factors affecting healthy brain development include access to appropriate health care, environmental and socioeconomic factors.

Examples of some cross-cutting areas for research are:

- Ethnographic studies and other areas of social science, particularly to address health systems, availability of resources, preventive or screening practices, and appropriate interventions within a given society or group;
- Gender and socio-cultural and economic factors in the etiology, prevention and treatment of the disorders to be addressed;
- Sex differences at all levels of brain and nervous system function and disorders;
- The influence of socio-cultural or other environmental variables on the natural history of common neurological diseases/disorders and how this knowledge can be used for treatment and intervention;
- Factors associated with aging affecting cognitive, emotional/mental and physical health and survival in older persons along with interventions and treatments;
- Co-occurring risk factors or conditions, especially common in the LMIC or region (e.g. neuro-toxic or traumatic insult plus infectious disease and/or malnutrition);
- Mechanisms (e.g. neurotoxic, epigenetic) underlying genetic, physiological, environmental, social and economic factors and interactions that affect brain function or development and result in behavioral outcomes (e.g., expression of cognitive impairment, coping, adaptation, response to intervention); and
- Epidemiology: 1) Descriptive epidemiology to describe and define the problem in the countries in question by assessing the needs and determining the magnitude of factors involved in the problem to be addressed (e.g., research on trends in incidence, prevalence

or mortality; distribution of disease; determination of population at risk; determination of case definition/disease classification). 2) Analytical epidemiology to identify potential etiological factors in the populations of interest, including factors responsible for predispositions to the neurological consequences of various infection and/or neurotoxins (e.g., identification of risk factors for neurological consequences of disease onset or progression; classification and measurement of exposure; magnitude and distribution of known risk factors).

Types of research relevant to this announcement include basic research and epidemiology, as well as translational research, research on diagnostics, early interventions, clinical treatment, prevention, and health services that are culturally appropriate, feasible, and acceptable for implementation within the LMIC. This FOA encourages the development of multidisciplinary and interdisciplinary research and the capacity in the LMIC to conduct such research, relevant to the research question. Expertise may involve, but is not limited to, fields such as genetics/epigenetics, epidemiology, neurology, cognitive neuroscience, developmental neurobiology, neuro-toxicology, neuro-endocrinology, pharmacology, psychiatry, neuro-immunology, neuro-virology, neurosurgery, neuro-rehabilitation and biotechnology (e.g., for development of diagnostic tools and treatments), as well as the behavioral and social sciences including health economics, health services and implementation science.

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

Letter of Intent: 30 days prior to application due Date

Deadline: November 7, 2017; November 7, 2018; November 7, 2019, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates

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

Grant Program: Cellular and Molecular Biology of Complex Brain Disorders (R01) and (R21)

Agency: National Institutes of Health PAR-17-309

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-17-309.html>

Brief Description: Disorders of complex brain function such as schizophrenia, depression, bipolar disorder, anxiety disorders and autism, represent some of the biggest challenges facing neuroscience. Impairments in complex brain functions exact a very high toll in care and lost productivity in the United States yet progress in understanding the causes and developing effective treatments has been slow since these brain disorders are not well-defined by biomarkers of pathology. However, with the recent identification of many statistically significant common and rare disease-associated genetic variants that confer risk for mental illnesses along with advances in cellular/molecular techniques including high resolution imaging technologies to visualize subcellular molecules and organelles, ultra-sensitive assay technologies, and new methods to activate/inactivate circuits and monitor their activities, neuroscientists are now poised to identify cellular, molecular, and circuit processes that go awry in these disorders. Although the questions posed may not be mature from the perspective of hypothesis testing for disease relevance, nurturing the initial stages of hypotheses development/discovery is critical for advancing our understanding of the factors that contribute to disorders of complex brain functions.

To gain a broader understanding of the biology underlying complex brain disorders, it is important to understand the context in which potential disease-associated alterations might occur

(e.g., when, where, alone or in combination with other changes, etc.), and their impact on cellular and molecular functions and circuit properties. Relevant alterations might include: changes in signaling cascades within and between cells including second and third messengers, neuromodulators, neurotrophins and ion channels downstream of receptors; protein synthesis, modification, and degradation; membrane dynamics; bioenergetics; metabolic, immunological and neuroinflammatory mechanisms; alterations in cell architecture and/or synaptic connectivity; regulation of the co-release of multiple transmitters from individual neurons, mechanisms of bidirectional signaling between neurons, glia and epithelial cells; homeostatic scaling; gut-brain interactions; changes that target sensitive periods of developmental plasticity or perturbations in circuit dynamics such as excitatory/inhibitory balance and the propensity for oscillatory activity.

This funding opportunity encourages the submission of innovative research grant applications at the interface between cellular and molecular mechanisms and that address gaps in understanding the biological mechanisms behind putative disease associated processes with the goal of accelerating progress in emerging research areas relevant to complex brain disorders. Applications submitted to this FOA should propose questions that are hypothesis-driven or propose discovery based studies with emphasis on exploring neurobiological mechanisms at the molecular, cellular and circuit levels. This FOA does not support applications proposing to use or develop a 'model of' a mental illness or syndrome (e.g., based on claims of face validity for, or 'looking like', a particular mental illness). Rather, applicants are encouraged to address molecular, cellular, and circuit activity (e.g., network activity of two or more cells, regulation of oscillatory activity) and how they might modify critical functional domains disrupted in mental illness.

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

Letter of Intent: Not required

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

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: Revision Applications for Regenerative Medicine Innovation Projects (RMIP) (R01)

Agency: National Institutes of Health RFA-HL-17-029

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-HL-17-029.html>

Brief Description: Research projects responsive to this FOA are expected to involve both of the following: (1) human subjects or material of human origin, such as cells, tissues, and specimens; and (2) human stem cells that are not of embryonic or fetal origin. Research projects involving induced pluripotent stem (iPS) cells may be supported, as long as the cells used to generate iPS cells were not of fetal or embryonic origin. Applicable research on adult human stem cells may encompass, for example, research on biologics (e.g., growth factors, cytokines) and biomaterials (e.g., ECM, scaffolds) that stimulate host adult stem cell growth, differentiation, and function or otherwise directly act upon adult stem cells to support innate host healing mechanisms, treat disease, and/or restore function. Funding could be used, for example, for the appropriate chemistry, manufacturing, and controls development to support the production of such products for clinical trials using good manufacturing practices (GMP). Funds may not be used for research involving human cells of embryonic or fetal origin.

This FOA will support highly meritorious clinical research projects proposing to explore and enable the development of safe and effective RM interventions. Specifically, for FY 2017 funds, in addition to being subject to the standard NIH review criteria, clinical research projects for this FOA will also be assessed according to the following criteria:

- Contributes to breadth/diversity of RM science;
- Addresses critical issues relevant to clinical research and regulatory submissions including those related to product development. Areas of focus may include improved tools, methods, standards, or applied science that support a better understanding and improved evaluation of product manufacturing, quality, safety, or effectiveness; and
- Helps to significantly build or advance the field of RM by contributing to foundational knowledge while addressing a well-recognized challenge in clinical development including the development and evaluation of safe and effective RM products.

Research Examples

Applications that demonstrate potential to catalyze sustained and accelerated development of the RM field through contributing to the knowledge critical for product development, clinical testing, and data standards and sharing, are strongly encouraged. For example, such projects may:

- Further development of standards and GMP for adult stem cell-based RM products;
- Leverage extant cell production facilities for product preparation and qualification;
- Promote and enhance mechanisms for data standardization, curation, integration, and sharing;
- Utilize clinical trial network(s) to leverage infrastructure and facilitate subject recruitment and follow up as well as data sharing; and/or
- Contribute to a better and shared understanding of current technical and operational barriers as well as the regulatory science issues.

Awards: Application budgets should not exceed \$324,500 per year in direct costs. See details in [R&R or Modular Budget](#)

Letter of Intent: May 26, 2017

Deadline: June 26, 2017, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on this date.

No late applications will be accepted for this Funding Opportunity Announcement.

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: CENTER OF EXCELLENCE: Trusted Human-Machine Teaming

Agency: Department of Defense AFOSR

Website: <http://www.wpafb.af.mil/Welcome/Fact-Sheets/Display/Article/842050/>

Brief Description: The Air Force Office of Scientific Research (AFOSR) seeks unclassified proposals from educational institutions in the United States for a University Center of Excellence (UCoE) in in Trusted Human-Machine Teaming. Proposals must not contain any proprietary information. This center is a joint project between the Air Force Office of Scientific Research and the Air Force Research Laboratory, Airman Systems Directorate (AFRL/RH), referred to collectively as “we, our, or us” in this announcement. The center will extend the research capabilities of the Air Force Research Laboratory, and provide opportunities for a new generation of United States scientists and engineers to address the basic research needs of the Air Force.

We will consider proposals for up to five (5) years with a three-year (3) base period and a two-year (2) option period. of Interest across the lifespan of an individual with ASD, are of particular importance to the ARP.

Awards: Up to \$5,000,000

Proposal Deadline: August 18, 2017

Contact Information:

DR. BENJAMIN KNOTT, AFOSR/RTA2

Trust and Influence Program

Telephone: (703) 696-1142

Email: benjamin.knott.2@us.af.mil

DR. ERICA JOHNSON, AFRL/711 HPW/RHCP

Applied Neuroscience Branch

Telephone: (937) 938-3569

Email: erica.johnson.7@us.af.mil

Grant Program: FY2018 Vannevar Bush Faculty Fellowship

Agency: Department of Defense ONR N00014-17-S-F015

Website: <https://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements>

Brief Description: The Vannevar Bush Faculty Fellowship (VBFF) program is sponsored by the Basic Research Office, Office of the Assistant Secretary of Defense for Research and Engineering (ASD (R&E)). VBFF supports innovative basic research within academia, as well as opportunities intended to develop the next generation of scientists and engineers for the defense workforce. The Office of Naval Research (ONR) manages the VBFF program for ASD (R&E). To accomplish this task, ONR is soliciting proposals for the VBFF program through this FOA. This FOA seeks distinguished researchers for the purpose of conducting innovative basic research in areas of interest to the DoD and fostering long-term relationships between the VBFF Fellows and the DoD. As defined by the DoD, basic research is “systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. It includes all scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs. It is farsighted high payoff research that provides the basis for technological progress.” (http://comptroller.defense.gov/Portals/45/documents/fmr/Volume_02b.pdf) The DoD’s basic research program invests broadly in many scientific fields to ensure that it has early cognizance of new scientific knowledge. VBFF is oriented towards bold and ambitious “blue sky” research that may lead to extraordinary outcomes such as revolutionizing entire disciplines, creating entirely new fields, or disrupting accepted theories and perspectives.

Awards: It is anticipated that awards will be made in the form of grants to U.S. institutions of higher education (universities). It is anticipated that the maximum award will be \$3 million per five years, with the actual amount contingent on availability of funds, the specific topic, and the scope of the proposed work.

Proposal Deadline:

Your registration must be completed no later than

Monday, 14 August 2017 at 11:59 PM Eastern Daylight Time

White Paper Deadline

Your white paper must be received no later than

Wednesday, 16 August 2017 at 11:59 PM Eastern Daylight Time

Inquiries and Questions Deadline

White Papers: Wednesday, 26 July 2017

Business related: Wednesday, 3 January 2018

Invited Proposal Deadline

Your proposal must be received no later than

Monday, 8 January 2018 at 11:59 PM Eastern Standard Time

Contact Information:

Dr. Ellen Livingston

VBFF Program Manager

Office of Naval Research Code 03R

E-mail Address: ellen.s.livingston@navy.mil

Grant Program: Autism Research Program (ARP) Idea Development Award

Agency: Department of Defense

W81XWH-17-ARP-IDA Idea Development Award

W81XWH-17-ARP-CTRA Clinical Translation Award

Website:

Idea Development Award: <http://cdmrp.army.mil/funding/pa/FY17-ARP-IDA.pdf>

Clinical Translation Award: <http://cdmrp.army.mil/funding/pa/FY17-ARP-CTRA.pdf>

Brief Description: The FY17 ARP Idea Development Award seeks applications from all areas of basic and preclinical research and strongly encourages applications that address the critical needs of the ASD community in one or more of the following areas: • Assessment of novel therapeutics using valid preclinical models • Environmental risk factors • Mechanisms of heterogeneous clinical expression of ASD • Mechanisms underlying conditions co-occurring with ASD (e.g., sleep disturbances, gastrointestinal issues, aggression, depression, anxiety, attention deficit, seizures) • Factors promoting success in key transitions to independence for individuals living with ASD • Development of healthcare provider-focused training or tools to improve healthcare delivery for individuals with ASD, particularly in adulthood • Cultural factors in treatment efficacy, delivery, and access to services Applications that focus on the examination of gender effects in any of the Areas of Interest stated above, as well as those studies investigating any of the Areas of Interest across the lifespan of an individual with ASD, are of particular importance to the ARP.

Awards: The anticipated direct costs budgeted for the entire period of performance for an FY17 ARP Idea Development Award will not exceed \$500,000.

Proposal Deadline:

Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), July 26, 2017

· Invitation to Submit an Application: September 1, 2017

· Application Submission Deadline: 11:59 p.m. ET, October 19, 2017

Contact Information: CDMRP Help Desk Phone: 301-682-5507 Email: help@eBRAP.org

Grant Program: FY2018 Office of Naval Research (ONR) Young Investigator Program (YIP)

Agency: Department of Defense Office of Naval Research N00014-17-S-F014

Website: www.onr.navy.mil

Brief Description: The Office of Naval Research (ONR) is interested in receiving proposals for its Young Investigator Program (YIP). ONR's Young Investigator Program (YIP) seeks to identify and

support academic scientists and engineers who are in their first or second full-time tenure-track or tenure-track-equivalent academic appointment, have begun their first appointment on or after 31 December 2012, and who show exceptional promise for doing creative research. The objectives of this program are to attract outstanding faculty members of Institutions of Higher Education (hereafter also called "universities") to the Department of the Navy's Science and Technology (S&T) research program, to support their research, and to encourage their teaching and research careers. Proposals addressing research areas (as described in the ONR Science and Technology Department section of ONR's website at www.onr.navy.mil) which are of interest to ONR program officers will be considered. Contact information for each division (a subgroup of an S&T Department) is also listed within the S&T section of the website.

Applicants are STRONGLY ENCOURAGED to contact the appropriate Program Officer who is the point of contact for a specific technical area to discuss their research ideas. A list of most Program Officers and their contact information can be found at: <http://www.onr.navy.mil/en/ScienceTechnology/Contacts.aspx> Brief informal pre-proposals may be submitted to facilitate these discussions but are not required. Such discussions can clarify the content and breadth of the priority research areas and enhance the match between a subsequent proposal and Department of the Navy research needs. Please allow adequate time for such discussions with the ONR Program Officer.

An individual wishing to apply for a Young Investigator award must submit a research proposal and at least one letter of support through the appropriate university officials. Refer to Section V "Evaluation Criteria" regarding the importance of the letter(s) of support in the overall evaluation criteria and Section IV "Application and Submission Information" regarding its content. Applications received without at least one letter of support will be considered incomplete and will not be considered for award. The research proposal should follow the format described in FOA Section IV entitled, "Application and Submission Information."

Awards: Applicants may request up to \$170,000 per year for three (3) years. These funds may be budgeted against any reasonable costs related to conducting the proposed research, for example, salary for the Young Investigator, graduate student support, supplies, and applicable indirect cost.

Proposal Deadline: September 15, 2017

Contact Information:

Dr. Reginald G. Williams YIP Program Manager Code 03R Office of Naval Research 875 North Randolph Street - Suite 660 Arlington, VA 22203-1995 reginald.g.williams@navy.mil

Grant Program: DoD Peer Reviewed Medical Investigator-Initiated Research Award

Agency: Department of Defense USAMRAA W81XWH-17-PRMRP-IIRA

Website: <https://www.grants.gov/web/grants/search-grants.html>

Brief Description: The PRMRP Investigator-Initiated Research Award is intended to support studies that will make an important contribution toward research and/or patient care for a disease or condition related to at least one of the Congressionally directed FY17 PRMRP Topic Areas. The rationale for a research idea may be derived from a laboratory discovery, population-based studies, a clinician's first-hand knowledge of patients, or anecdotal data. Applications must include relevant data that support the rationale for the proposed study. These data may be unpublished or from the published literature. The program seeks applications in laboratory, clinical, behavioral, epidemiologic, and other areas of research to advance knowledge in disease etiology, improve prevention, detection, diagnosis, treatment, and quality of life for those affected by a relevant disease or condition, and to develop and validate clinical care or public health guidelines.

Awards: Various; Anticipated funding: \$90,000,000

Proposal Deadline: October 18, 2017

Contact Information: CDMRP Help Desk 301-682-5507 help@eBRAP.org

Grant Program: DoD Spinal Cord Injury Research Program, Investigator-Initiated Research Award

Agency: Department of Army USAMRAA W81XWH-17-SCIRP-IIRA

Website: <http://cdmrp.army.mil/funding/pa/FY17-SCIRP-IIRA.pdf>

Brief Description: The FY17 SCIRP challenges the scientific community to design research that will foster new directions for and address neglected issues in the field of SCI-focused research. Applications from investigators within the military Services, and applications involving multidisciplinary collaborations among academia, industry, the military Services, the Department of Veterans Affairs (VA), and other Federal Government agencies are highly encouraged. Though the SCIRP supports groundbreaking research, all projects must demonstrate solid scientific rationale.

The FY17 SCIRP encourages applications that specifically address one or more of the following areas: • Pre-hospital, prolonged field care, en route care, and early hospital management of SCI • Development, validation, and timing of promising interventions to address consequences of SCI and to improve recovery, including, but not limited to: ○ Bladder, bowel, and autonomic dysfunction ○ Cardiometabolic dysfunction ○ Neuropathic pain and sensory dysfunction ○ Pressure ulcers ○ Respiratory dysfunction ○ Sexual dysfunction ○ Depression in the early period after injury.

Awards: The anticipated direct costs budgeted for the entire period of performance for an FY17 SCIRP IIRA will not exceed \$500,000.

Proposal Deadline:

Pre-Application Submission Deadline: 5:00 p.m. Eastern time (ET), August 8, 2017

• Invitation to Submit an Application: September 2017

• Application Submission Deadline: 11:59 p.m. ET, November 29, 2017

Contact Information: CDMRP Help Desk Phone: 301-682-5507 Email: help@eBRAP.org

Department of Energy

Grant Program: Technology Development to Ensure Environmentally Sustainable CO2 Injection Operations

Agency: Department of Energy DE-FOA-0001725

Website:

https://www.fedconnect.net/FedConnect/PublicPages/PublicSearch/Public_Opportunities.aspx

Brief Description: This FOA seeks applications on research to develop techniques, tools, and methodologies that improve detection and assessment of CO2 stored in the target reservoir. Research products developed under this FOA are expected to include monitoring tools and techniques, as well as validation of models and modeling techniques. Successful technologies developed under this FOA will decrease the operator's financial burden associated with long-term monitoring by providing them the capability to assess the position of the CO2 plume in the target reservoir with greater certainty throughout the life cycle of the project (i.e., active- and post-injection).

Award: Up to \$2,000,000

Proposal Deadline: August 11, 2017

Contact Information:

K. Young 412-386-4402 bethan.young@netl.doe.gov

Grant Program: Notice of Intent (Noi) To Issue a Request For Applications (RFA) Entitled "Fiscal Year 17 Biomass Research And Development Initiative (BRDI)"

Agency: Department of Energy DE-FOA-0001711

Website: <https://eere-exchange.energy.gov/>

Brief Description: The U.S. Department of Agriculture (USDA), National Institute of Food and Agriculture (NIFA) in conjunction with the U.S. Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy (EERE), Bioenergy Technologies Office (BETO) intends to issue a Request for Applications (RFA) entitled "Fiscal Year 17 Biomass Research and Development Initiative (BRDI)." For fiscal year (FY) 2017, the BRDI program requires that funded projects address at least one (1) of the following three (3) legislatively mandated technical (topic) areas:

1) Feedstocks development – The intent of this Topic Area is to address research, development, and demonstration (RD&D) activities regarding feedstocks and feedstock logistics (including harvest, handling, transport, preprocessing, and storage) relevant to production of raw materials for conversion to biofuels and biobased products. The BRDI program is designed to support near-term commercial systems. Projects should emphasize development and optimization of existing feedstocks that will be available for testing and demonstration during the life of the project. Proposals that include breeding or genetic improvement of feedstocks should reconcile this work with the Program’s emphasis on near-term impacts.

2) Biofuels and biobased products development – The intent of this Topic Area is to address RD&D activities to support (i) development of diverse cost-effective, innovative technologies for the use of cellulosic biomass in the production of biofuels, bioenergy, and biobased products; and, (ii) product diversification through technologies relevant to the production of a range of biobased products (including chemicals, animal feeds, and cogeneration power) that potentially can increase the feasibility of fuel production in a biorefinery.

3) Biofuels development analysis – The intent of this Topic Area is to apply systems evaluation methods that can be used to optimize system performance and market potential and to quantify the project’s impact on sustainability; therefore, successful applications will consider the lifecycle (cradle-to-grave) impacts including environmental, social, and economic implications that are attributable to the project. Successful projects should include these sustainability data in engineering process models and be used over the life of the project to improve the system and quantify sustainability impacts.

NIFA and EERE envision awarding multiple financial assistance awards in the form of grants and cooperative agreements, respectively. The estimated period of performance for each award will be approximately three (3) years.

This Notice is issued so that interested parties are aware of NIFA’s and EERE’s intention to issue the RFA in the near term. All of the information contained in this Notice is subject to change. Neither NIFA nor EERE will respond to questions concerning this Notice. Once the RFA has been released, NIFA will provide an avenue for potential Applicants to submit questions.

NIFA and EERE plan to issue a RFA titled "Fiscal Year 17 Biomass Research and Development Initiative" in mid February 2017 via the EERE Exchange website (<https://eere-exchange.energy.gov/default.aspx>).

Contact Information:

- EERE-ExchangeSupport@hq.doe.gov

For all responses and questions regarding this RFI.

Grant Program: Request For Information (RFI): Clean Water Technologies

Agency: Department of Energy DE-FOA-0001676

Website: <https://eere-exchange.energy.gov/default.aspx#Foaid46380d32-05f4-43ed-96a7-9a4e43151674>

Brief Description: EERE's Advanced Manufacturing Office (AMO) partners with industry, small business, universities, and other stakeholders to identify and invest in emerging technologies with the potential to create high-quality domestic manufacturing jobs and enhance the global competitiveness of the United States. Through this Request for Information, EERE, on behalf of AMO, seeks feedback on technologies with the potential for early stage research and development (R&D) that if successfully advanced could impact the cost-effective and energy efficient availability of clean water processed from a variety of sources such as surface water, ground water, brackish water, seawater, wastewater and produced water for a range of applications including municipal drinking water, agricultural uses, and industrial needs.

Responses to this RFI must be submitted electronically to AMOCleanWater@ee.doe.gov no later than 5:00 pm (EDT) on July 28, 2017. Responses must be provided as attachments to an email. This RFI is not a Funding Opportunity Announcement (FOA); therefore, EERE is not accepting applications at this time. EERE may issue a FOA in the future based on or related to the content and responses to this RFI; however, EERE may also elect not to issue a FOA. There is no guarantee that a FOA will be issued as a result of this RFI. Responding to this RFI does not provide any advantage or disadvantage to potential applicants if EERE chooses to issue a FOA regarding the subject matter. Final details, including the anticipated award size, quantity, and timing of EERE funded awards, will be subject to Congressional appropriations and direction.

Document: [Request for Information \(RFI\) - Clean Water Technologies - DE-FOA-0001676](#)

- **Contact Information:** AMOCleanWater@ee.doe.gov

For all responses and questions regarding this RFI.

- EERE-ExchangeSupport@hq.doe.gov

For technical questions concerning the Exchange website.

NASA

Grant Program: ROSES 2017: New (Early Career) Investigator Program

Agency: NASA NNH17ZDA001N-NIP

Website:

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={344D6EF1-D56F-60FD-505E-A31035E2B19C}&path=open>

Brief Description: The New (Early Career) Investigator Program (NIP) in Earth Science is designed to support outstanding scientific research and career development of scientists and engineers at the early stage of their professional careers. The program aims to encourage innovative research initiatives and cultivate scientific leadership in Earth system science. The Earth Science Division (ESD) places particular emphasis on the investigators' ability to promote and increase the use of space-based remote sensing through the proposed research. The NIP supports all aspects of scientific and technological research aimed to advance NASA's mission in Earth system science (<http://science.nasa.gov/about-us/sciencestrategy/>). In research and analysis, the focus areas are: • Carbon Cycle and Ecosystems, • Climate Variability and Change, •

Water and Energy Cycle, • Atmospheric Composition, • Weather, and • Earth Surface and Interior. In Applied Sciences, the ESD encourages efforts to discover and demonstrate practical uses of NASA Earth science data, knowledge, and technology (see <http://appliedsciences.nasa.gov>). In technological research, the ESD aims to foster the creation and infusion of new technologies into space missions in order to enable new scientific observations of the Earth system or reduce the cost of current observations (see <http://esto.nasa.gov>). The ESD also promotes innovative development in computing and information science and engineering of direct relevance to ESD. See Appendix A.1 for more detailed descriptions of the Focus Areas, themes in applied sciences, and related research topics of high priority to the ESD.

The proposed research project must be led by a single, eligible (see further description below for eligibility) investigator serving as the Principal Investigator (PI). Indeed, this individual must be the only essential team member; no Co-Investigators (Co-Is), paid or unpaid, are permitted. The NIP does not accept proposals with Co-PIs nor two types of PIs, such as Science PI and Institutional PI. Students and postdoctoral fellows may participate as paid team members. The proposed research may include collaborations. See the Guidebook for Proposers at <http://www.hq.nasa.gov/office/procurement/nraguidebook/> for the definitions of Collaborator vs. Co-Investigator and descriptions of China-related restrictions.

To be eligible for an NIP award, proposed PIs must meet the following requirements:

1. Be employed at an institution in the U.S., its territories, or possessions, or the Commonwealth of Puerto Rico, which awards a baccalaureate or advanced degree in a field supporting the objectives of NASA Earth system studies, or be employed at any nonprofit research institution or other nonprofit organization that performs a significant amount of work in fields of research supporting the objectives of NASA's Earth Science Program. Such organizations could include museums, observatories, Government or nonprofit research laboratories, as well as nonprofit entities in the private sector.
2. Be in tenure- or nontenure-track positions in either teaching or research or both, as long as the employing institution assumes the responsibility of submitting the proposal with the individual as the proposed PI.
3. Despite being more than five years beyond the receipt of their Ph.D. degrees, individuals who have interrupted their careers for reasons such as family leave or serious health problems may also be eligible. These applicants should make a written request for prior concurrence from NASA before the due date for Notices of Intent to propose. NASA will provide a written response within three weeks. Such exception is not intended for individuals who have had successful employment in technical fields in science and engineering, even though the employment is not a direct continuation of their Ph.D. research, nor is it intended for individuals with a recent Ph.D. degree after having already established a successful career in Earth system science and related disciplines.
4. Not hold or have held tenure (or equivalent) on or before the submission deadline of this program.
5. Not be a current or former recipient of the NIP or Presidential Early Career Award for Scientists and Engineers (PECASE) (see further below) award.

Awards: Proposals to the NIP are openly solicited approximately every two years. The anticipated average award is \$80-90K per year for a period of up to three years, subject to satisfactory progress and availability of funds.

Proposal Deadline: NIP17 NOIs Due: July 31, 2017

NIP17 Proposals Due: August 31, 2017

Contact: Lin Chambers

Earth Science Division

Science Mission Directorate
NASA Headquarters
Washington, DC 20546-0001
Telephone: 202-358-1667
E-mail: lin.h.chambers@nasa.gov

Grant Program: ROSES 2017: Early Stage Innovation

Agency: NASA NNH17ZOA001N-17ESI_B2

Website:

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId=%7B68935F1B-9778-91FC-CB89-D49868D3FC94%7D&path=init>

Brief Description: The STRG Program within STMD is fostering the development of innovative, low-TRL technologies for advanced space systems and space technology. The goal of this lowTRL endeavor is to accelerate the development of groundbreaking, high-risk/high-payoff space technologies, not necessarily directed at a specific mission, to support the future space science and exploration needs of NASA, other government agencies, and the commercial space sector. Such efforts complement the other NASA Mission Directorates' focused technology activities which typically begin at TRL 3 or higher. The starting TRL of the efforts to be funded as a result of this Appendix will be TRL 1 or TRL 2; typical end TRLs will be TRL 2 or TRL 3. See Attachment 2 of the NRA for TRL descriptions.

This Appendix seeks proposals to develop unique, disruptive, or transformational space technologies that have the potential to lead to dramatic improvements at the system level — performance, weight, cost, reliability, operational simplicity, or other figures of merit associated with space flight hardware or missions. Although progress under an award may be incremental, the projected impact at the system level must be substantial and clearly defined. This Appendix does not seek literature searches, survey activities or incremental enhancements to the current state of the art (SOA).

Awards: Various

Proposal Deadline: ESI17 NOIs Due: June 2, 2017

ESI17 Proposals Due: June 30, 2017

Contact: Claudia Meyer

Space Technology Research Grants Program Executive

Space Technology Mission Directorate, NASA Headquarters

hq-esi-call@mail.nasa.gov

National Endowment of Humanities

Grant Program: Summer Awards

Agency: National Endowment of Humanities

Website: <https://www.neh.gov/grants/research/summer-stipends>

Brief Description: Summer Stipends support individuals pursuing advanced research that is of value to humanities scholars, general audiences, or both. Eligible projects usually result in articles, monographs, books, digital materials and publications, archaeological site reports, translations, or

editions. Projects must not result solely in the collection of data; instead they must also incorporate analysis and interpretation.

Summer Stipends support continuous full-time work on a humanities project for a period of two consecutive months. Summer Stipends support projects at any stage of development.

Awards: \$6,000 stipend.

Proposal Deadline: **September 27, 2017** for *Projects Beginning May 2018*

Contact: Contact NEH's Division of Research Programs at 202-606-8200 or stipends@neh.gov.

Grant Program: Research and Development Grants

Agency: National Endowment of Humanities

Website: <https://www.neh.gov/grants/preservation/research-and-development>

Brief Description: The Research and Development program supports projects that address major challenges in preserving or providing access to humanities collections and resources. These challenges include the need to find better ways to preserve materials of critical importance to the nation's cultural heritage—from fragile artifacts and manuscripts to analog recordings and digital assets subject to technological obsolescence—and to develop advanced modes of organizing, searching, discovering, and using such materials. This program recognizes that finding solutions to complex problems often requires forming interdisciplinary project teams, bringing together participants with expertise in the humanities; in preservation; and in information, computer, and natural science.

All projects must demonstrate how advances in preservation and access would benefit the cultural heritage community in supporting humanities research, teaching, or public programming.

Research and Development offers two funding tiers in order to address projects at all stages of development and implementation.

Tier I: Planning and Basic Research

Tier I grants support the following activities:

- planning and preliminary work for large-scale research and development projects; and
- stand-alone basic research projects, such as case studies, experiments, or the development of methods, models, and tools.

Tier II: Advanced Implementation

Tier II grants support projects at a more advanced stage of implementation for the following activities:

- the development of standards, practices, methodologies, or workflows for preserving and creating access to humanities collections; and
- applied research addressing preservation and access issues concerning humanities collections.

Awards: For Planning and Basic Research (Tier I) projects, the maximum award is \$75,000 for up to two years. For Advanced Implementation (Tier II) projects, the maximum award is \$350,000 for up to three years. Successful applicants will be awarded a grant in outright funds, federal matching funds, or a combination of the two, depending on the applicant's preference and the availability of NEH funds.

Proposal Deadline: June 8, 2017

Contact: Contact the staff of NEH's Division of Preservation and Access at preservation@neh.gov and 202-606-8570. Applicants who are deaf or hard of hearing can contact NEH via Federal Relay (TTY users) at 800-877-8399.

Streamlyne Update

Research proposals are being successfully submitted through Streamlyne. New “How to Do” videos have been posted on the research website <http://www5.njit.edu/research/streamlyne/>. These videos show step-by-step process on the following tasks:

- ◆ [How to Begin Proposal Submission in Streamlyne](#)
- ◆ [How to Input Proposal Budget](#)
- ◆ [How to Process Approvals](#)
- ◆ [How to Upload Proposal Attachments](#)

In addition, most Frequently Asked Question (FAQs) from PIs are posted with answers on the same website as [Streamlyne FAQs](#)

Faculty and staff having any questions on proposal submission, may contact their college representatives, and also follow up with **Justin Samolewicz, Associate Director (Pre Award)** 973-596-3145; justin.m.samolewicz@njit.edu; and **Eric Hetherington, Director, Sponsored Research Programs Administration** 973-596-3631; eric.d.hetherington@njit.edu. The college representatives to help PIs on proposal submissions are

John McCarthy, NCE Director of Research
(973) 596-3247; john.p.mccarthy@njit.edu

Cristo Leon, CSLA Director of Research
(973) 596-6426; cristo.e.yanezleon@njit.edu

Nancy Henderson, CCS Project Manager
973-596-5687; nancy.henderson@njit.edu

Iris Pantoja, CoAD and SOM Project Manager
973-596-4483; irp3@njit.edu
