Grant Opportunity Alerts: Issue: ORD-GOA-2014-10

IMPORTANT NOTE to NSF Grant Awardee: This issue includes NSF Research Experience for Undergraduates (REU) Supplement Awards Opportunities for faculty with NSF Grants to apply. In most cases, the PI of NSF grant simply has to contact the NSF Program Officer requesting a supplement award for undergraduate student(s) to work on the grant. Depending on the directorate and program, the PI may asked to submit an abstract or a short write up about what student would do. The supplement awards are promptly added if approved by the Program Officer. Please see more information below.

Keywords and Areas Included in Funding Opportunities Alerts (see below)**:**
NSF: REU Supplement, Infrastructure Management for Extreme Events
National Endowment for the Humanities
NASA: Space and Earth Sciences
Department of Energy: Partnering to Accelerate Entrepreneurship (PACE) Initiative: MOSIAC, Regular Grants, SBIR/STTR
NIH: Metabolizing Enzymes, Metabolites, and Cofactors in Health and Disease, R01, R21
EPA: Student Programs (SPEED)

Special Events

NJIT Distinguished Research Panel on NIH Funding Opportunities and Review Process

When: December 12, 2014; 11.30 AM to 1.30 PM
Where: **Atrium, Student Campus Center** (Please note the change in venue)
Who are Speakers:

Daofen Chen, Ph.D.
Program Director, Extramural Research Program
National Institute of Neurological Disorders and Stroke (NINDS/NIH)

Weijia Ni, Ph.D
Chief, RPHB/DABP
Center for Scientific Review (CSR)
National Institutes of Health (NIH)

And others from Rutgers Medical School and SHRP

Why You Should Attend: You should attend to learn about NIH priorities, type of support and recent changes in NIH-CSR review process. Also, meet and network

with researchers and faculty from Rutgers University, Rutgers Medical School, SHRP and EDC members during the networking and light refreshment event.

National Science Foundation

Grant Program: Research Experience for Undergraduate Supplement
Agency: **National Science Foundation**
RFP Website: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517&org=NSF
Brief Description: The Research Experiences for Undergraduates (REU) program supports active research participation by undergraduate students in any of the areas of research funded by the National Science Foundation. REU projects involve students in meaningful ways in ongoing research programs or in research projects specifically designed for the REU program. This solicitation features two mechanisms for support of student research: (1) *REU Sites* are based on independent proposals to initiate and conduct projects that engage a number of students in research. REU Sites may be based in a single discipline or academic department or may offer interdisciplinary or multi-department research opportunities with a coherent intellectual theme. Proposals with an international dimension are welcome. (2) *REU Supplements* may be included as a component of proposals for new or renewal NSF grants or cooperative agreements or may be requested for ongoing NSF-funded research projects.

Undergraduate student participants in either REU Sites or REU Supplements must be U.S. citizens, U.S. nationals, or permanent residents of the United States.

The REU Program Announcement, which can be found under Program Guidelines on the REU Program Overview page provides guidance on how to apply for an REU Supplement or for an REU Site. The REU program seeks to expand student participation in all kinds of research - whether disciplinary, interdisciplinary, or educational in focus - encompassing efforts by individual investigators, groups, centers, national facilities, and others. The program seeks to attract a diversified pool of talented students into careers in science and engineering and to help ensure that they receive the best education possible.

A request for an REU Supplement may be included within a proposal for a new or renewal NSF grant or cooperative agreement or as a supplement to an ongoing NSF-funded project. An REU Supplement request is handled by the NSF program officer for the underlying research grant

Awards: Various
Deadline: Contact Program Officer as soon as possible. Please see the list of REU Contacts at http://www.nsf.gov/crssprgm/reu/reu_contacts.jsp

Grant Program: Infrastructure Management and Extreme Events (IMEE)
Agency: **National Science Foundation** PD-15-1638
RFP Website: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13353
Brief Description: The IMEE program supports fundamental, multidisciplinary research on the impact of hazards and extreme events upon civil infrastructure and society. The program is focused upon research on the mitigation of, preparedness for, response to, and recovery from multi-hazard disasters. Community and societal resilience and sustainability are important topics within the research portfolio of IMEE. The program is deeply multidisciplinary and attempts to integrate multiple issues from civil, mechanical, transportation, and system engineering, sociology, psychology, economics, geography, political science, urban planning, epidemiology, natural and physical science, and computer science. With regard to the four core emphasis areas of mitigation, preparedness, response and recovery, a variety of topics are supported. The following list provides examples of the kinds of topics and issues that may be supported, though the list is not exhaustive and other, innovative topics may be proposed. Mitigation research may focus upon issues such as the analysis of structural and non-structural mitigation effectiveness, local capacity building for risk reduction, and social and physical vulnerability analyses. Preparedness research may involve studies on warning and risk communication, evacuation, multi-hazard emergency planning, and the effectiveness of pre-disaster planning. Response research may examine such issues as infrastructure interdependencies and cascading disasters, innovation and improvisation in emergency management, and the use of new communication technology and social media in emergency management. Recovery research may examine linking disaster recovery to the mitigation of future disasters, resilience metrics and models, resilience of interdependent infrastructure processes and systems, and social factors related to economic recovery and resilience.
The program does not support research on the normal, day-to-day operation of infrastructure systems. Such research should be submitted to the Civil Infrastructure Systems (CIS) program. It also does not support basic research on non-hazard or disaster related structural engineering and geotechnical engineering. Such research should be submitted to the Structural & Architectural Engineering (SAE) and Geotechnical Engineering and Materials (GEM) program. In addition, the program does not support hazard and disaster research that is mechanistic and embedded in traditional, engineering disciplinary frameworks. Such research should be submitted to the Engineering for Natural Hazards (ENH) program
Awards: Various
Deadline: Full Proposal Window: February 1, 2015 - February 17, 2015

National Endowment for the Humanities

Grant Program: Digital Humanities Implementation Grants
Agency: National Endowment for the Humanities
RFP Website: http://www.neh.gov/grants/odh/digital-humanities-implementation-grants
Brief Description:
This program is designed to fund the implementation of innovative digital-humanities projects that have successfully completed a start-up phase and demonstrated their value to the field. Such projects might enhance our understanding of central problems in the humanities, raise new questions in the humanities, or develop new digital applications and approaches for use in the humanities. The program can support innovative digital-humanities projects that address multiple audiences, including scholars, teachers, librarians, and the public. Applications from recipients of NEH¿s Digital Humanities Start-Up Grants are welcome. Unlike NEH¿s start-up grant program, which emphasizes basic research, prototyping, experimentation, and potential impact, the Digital Humanities Implementation Grants program seeks to identify projects that have successfully completed their start-up phase and are well positioned to have a major impact.

Proposals are welcome for digital initiatives in any area of the humanities. Digital Humanities Implementation Grants may involve

- research that brings new approaches or documents best practices in the study of the digital humanities;
- implementation of computationally-based methods or techniques for humanities research;
- implementation of new digital tools for use in humanities research, public programming, or educational settings;
- efforts to ensure the completion and long-term sustainability of existing digital resources (typically in conjunction with a library or archive);
- scholarship that examines the history, criticism, and philosophy of digital culture and its impact on society;
- scholarship or studies that examine the philosophical or practical implications of the use of emerging technologies in specific fields or disciplines of the humanities, or in interdisciplinary collaborations involving several fields or disciplines; or

implementation of new digital modes of scholarly communication that facilitate peer review, collaboration, or the dissemination of humanities scholarship for various audiences.
Awards: Up to $325,000
Deadline: February 18, 2015 *for Projects Beginning September 2015*

NASA

Grant Program: Research Opportunities in Space and Earth Sciences (ROSES) – 2014: Rapid Response and Novel Research in Earth Science

Agency: NASA Solicitation: **NNH14ZDA001N**

RFP Website:

http://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId=%7B5924CEB3-4EB7-FEF1-C85B-DD5745C1331C%7D&path=open

Brief Description: This National Aeronautics and Space Administration (NASA) Research Announcement (NRA), entitled *Research Opportunities in Space and Earth Sciences (ROSES)–2014*, solicits basic and applied research in support of NASA's Science Mission Directorate (SMD). This NRA covers all aspects of basic and applied supporting research and technology in space and Earth sciences, including, but not limited to: theory, modeling, and analysis of SMD science data; aircraft, scientific balloon, sounding rocket, International Space Station, CubeSat and suborbital reusable launch vehicle investigations; development of experiment techniques suitable for future SMD space missions; development of concepts for future SMD space missions; development of advanced technologies relevant to SMD missions; development of techniques for and the laboratory analysis of both extraterrestrial samples returned by spacecraft, as well as terrestrial samples that support or otherwise help verify observations from SMD Earth system science missions; determination of atomic and composition parameters needed to analyze space data, as well as returned samples from the Earth or space; Earth surface observations and field campaigns that support SMD science missions; development of integrated Earth system models; development of systems for applying Earth science research data to societal needs; and development of applied information systems applicable to SMD objectives and data.

Awards range from under $100K per year for focused, limited efforts (e.g., data analysis) to more than $1M per year for extensive activities (e.g., development of science experiment hardware). The funds available for awards in each program element offered in this NRA range from less than one to several million dollars, which allow selection from a few to as many as several dozen proposals depending on the program objectives and the submission of proposals of merit. Awards will be made as grants, cooperative agreements, contracts, and inter- or intraagency transfers depending on the nature of the work proposed, the proposing organization and/or program requirements. The typical period of performance for an award is three years, although many programs allow longer (maximum of five years) and a few may specify shorter periods. Organizations of every type, domestic and foreign, Government and private, for profit and not-for-profit, may submit proposals without restriction on teaming arrangements. Note that it is NASA policy that all investigations involving non-U.S. organizations will be conducted on the basis of no exchange of funds. Any changes or modifications to any of these guidelines will be specified in the descriptions of the relevant program elements in the Appendices of this solicitation.

The draft *2014 NASA Strategic Plan* identifies the following strategic objectives as those to be pursued by SMD:

- Understand the Sun and its interactions with Earth and the solar system, including space weather;
- Advance knowledge of Earth as a system to meet the challenges of environmental change and to improve life on our planet;
- Ascertain the content, origin, and evolution of the solar system and the potential for life elsewhere; and,
- Discover how the universe works, explore how it began and evolved, and search for life on planets around other stars.

Awards: Up to $1,000,000
Deadline: Rolling Submissions through 03/31/2015

Department of Energy: Advanced Research Projects Agency Energy

Grant Program: Call for Partnership Concept Papers for the Partnering to Accelerate Entrepreneurship (PACE) Initiative: MOSIAC
Agency: Department of Energy Advanced Research Projects Agency Energy
DE-FOA-0001255 and
DE-FOA-0001256 (MOSIAC SBIR/STTR)
RFP Website: **http://www.usaid.gov/work-usaid/get-grant-or-contract/opportunities-funding/global-development-alliance-annual-program**
Brief Description: The MOSAIC (Micro-scale Optimized Solar-cell Arrays with Integrated Concentration) Program will fund potentially disruptive technologies and related system concepts to achieve new performance and cost benchmarks for solar-electric generation from photovoltaics (PV). Specifically, MOSAIC will develop novel concepts that integrate arrays of high-performance micro-scale concentrated PV (micro-CPV) elements into modules that are similar in profile and cost to traditional non-concentrated "flat-plate" (FP) PV, but achieve the performance level associated with conventional Concentrated Photovoltaics (CPV). Realization of the aggressive targets of MOSAIC will require the formation of R&D teams from several communities, including material scientists, electrical and packaging engineers, optical engineers, micro-scale manufacturing specialists, and researchers in polymers and opto-electronics.
Awards: Up to $3,250,000
Deadline: Concept Paper Submission Deadline: 1/22/2015 5:00 PM ET
Full Application Submission Deadline: TBD

National Institutes of Health:

Grant Program: Unconventional Roles of Ethanol Metabolizing Enzymes, Metabolites, and Cofactors in Health and Disease (R01 and R21)
Agency: NIH R01 Research Projects; PA-14-198
PA-15-057, R21 Exploratory/Developmental Grant
RFP Website: http://grants.nih.gov/grants/guide/pa-files/PA-15-058.html
Brief Description: A major goal of this FOA is to stimulate research that will broaden our understanding of how alcohol metabolism causes tissue damage, by considering not only the metabolic products of ethanol itself, but all of the biochemical changes resulting from alcohol metabolism in different cell types. The long-term goal is a comprehensive understanding of how alcohol metabolism impacts cellular function and end-organ disease, which has important implications for therapeutics development.
Ethanol and NAD+
Ethanol oxidation is accompanied by NAD+ reduction to NADH that generates a highly reductive cytoplasmic environment in cells and tissues where ADH and CYP2E1 are active. This mechanism has been best studied in hepatocytes, but may be relevant in other cells as well. In mammals three major enzyme families are capable of cleaving NAD+: sirtuins, ADP-ribosyltransferases including PARP, and cyclic ADP (cADP)-ribose synthase, two of which (sirtuins and PARPs) are also chromatin-modifying enzymes.
One major consequence of the decreased NAD+/NADH ratio in mammalian cells is the reduced activity of the NAD+ dependent SIRT1 histone deacetylase activity, an orthologue of S. pombe Sir2 histone deacetylase, which links cellular metabolism status to transcriptional silencing. SIRT1 requires NAD+ for its activity and has essential functions in regulating circadian genes, caloric restriction and obesity pathways and consequently affects longevity in every organism studied so far. Members of the mammalian sirtuin family of histone deacetylases (HDAC III) comprise seven homologues (SIRT1-7) with ubiquitous expression and diverse subcellular localization. Their functions affect a wide range of biological processes including tubulin deacetylation (SIRT2), adaptive thermogenesis, mitochondrial function, energy homeostasis, survival during genotoxic stress (SIRT3), genomic DNA stability and DNA repair (SIRT6). These considerations strongly suggest a role for SIRTs in alcohol-induced tissue injuries (e.g. Alcoholic Liver Disease, Fetal Alcohol Spectrum Disorders, ethanol-induced cancers) but their involvement has not been systematically investigated.
These enzymes are characterized by the highly conserved PARP domain that is the active site of the catalytic center. The best studied members are PARP 1 and 2: these ubiquitous zinc finger proteins are localized in the nucleus and are involved in chromatin maintenance and DNA repair by binding to single and double stranded breaks generated by genotoxic stress. Thus, PARPs may play a significant role in alcohol promoted cancers invoked by DNA damage of acetaldehyde. PARPs are the main modulators of intracellular NAD+ level, which in turn may indirectly control sirtuin functions through NAD+ availability. Changes in ADP-ribosylation of histone and other PARP target proteins brought about by ethanol consumption are

unknown and require further investigation. Furthermore, clarification of the functional interrelationship between SIRTs and PARPs mediated through NAD+ availability is needed. Conceivably, zinc deficiency, which is a well described consequence of excess ethanol ingestion, may affect PARP function, but this question has not been addressed experimentally.
Pioneering studies argue that an excessively reductive environment itself can induce "reductive stress" and lead to potentially lethal cardiomyopathy in a transgenic mouse model and in human patients. This novel pathway may be operational in other tissues where reductive intracellular environment is generated by the shift induced by alcohol ingestion. The fundamental principles of this process are unclear and require further investigations.
Awards: Standard Awards; Applicants requesting $500,000 or more in direct costs in any year (excluding consortium F&A) must contact NIH program staff at least 6 weeks before submitting the application and follow the Policy on the Acceptance for Review of Unsolicited Applications that Request $500,000 or More in Direct Costs as described in the SF424 (R&R) Application Guide.
Letter of Intent: Not Required
Deadline: Standard Dates: February 5, June 5 and October 5, 2015

Environmental Protection Agency (EPA)

Grant Program: STUDENT PROGRAM FOR ENVIRONMENTAL EXCELLENCE IN DESIGN (SPEED)
Agency: EPA RFA# EPA-OAR-OTAQ-15-02
RFP Website: http://www.epa.gov/air/grants_funding.html
Brief Description: The SPEED aims to increase students' awareness and understanding of the environmental benefits associated with increased fuel efficiency, reduced carbon intensity in transportation fuels, and reduced emissions in advanced vehicles. Through the SPEED, graduate-level students and senior-level undergraduate students in the science, technology, and engineering disciplines would be provided opportunities, and in certain cases financial support, to collaborate with EPA staff at the EPA's National Vehicle and Fuel Emissions Laboratory (NVFEL) in Ann Arbor, Michigan. Students would also obtain research training on-site at the NVFEL.
This project has three components: The first component focuses on development of a graduate-level research training and support partnership between the EPA and the recipient to continue advanced engine research and development. Through the SPEED, the recipient would work with the EPA's NVFEL to foster a collaborative research relationship between EPA's NVFEL, graduate-level engineering students, and faculty. Funding support for participating graduate-level students performing graduate level research on-site at the NVFEL would be provided under this component of the project.

The second component of the SPEED would be to design and manage a program to introduce and motivate undergraduate-level students to consider the professional pursuit of careers in the science, technology, and engineering disciplines. This component of the program would have an interdisciplinary perspective with a focus on improving public health and the environment through design projects and training for participating students.

The third component of the SPEED focuses on design and development of graduate-level major transportation-related environmental policy project experiences. The recipient would work with the EPA's Transportation and Climate Division (TCD) through a collaborative relationship focusing on high level policy analysis, research and development between EPA's Office of Transportation and Air Quality (OTAQ), environmental policy students, and faculty.

Awards: Up to $350,000

Letter of Intent: December 15, 2014

Deadline: The closing date and time for receipt of application submissions, regardless of mode of submission, is **January 23, 2015, 4:00 p.m., Eastern Standard Time (EST)**. All hard copies of application packages must be received by the closing date and time in order to be considered for funding. Electronic submissions must be submitted to the EPA through Grants.gov (http://www.grants.gov) by **January 23, 2015, 4:00 p.m. EST** in order to be considered for funding. Applications received after the closing date and time will not be considered for funding.

To allow for efficient management of the competitive process, the EPA requests submittal of an informal notice of an "**Intent to Apply" by December 15, 2014** to klavon.patty@epa.gov.