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To: NDSU-EMPLOYEE-OFFICIAL@LISTSERV.NODAK.EDU

Subject: RCA Update - July 30, 2018 Edition



Welcome to the Research and Creative Activity Update!

The Office of Research and Creative Activity (RCA) sends weekly emails to NDSU faculty and staff to provide current information on various topics including funding opportunities, grant program changes, research resources, deadlines, notices, and training.

These weekly email updates are archived on the [RCA Website](#).

SEARCH FOR NDSU SCHOLARS

FUNDING OPPORTUNITIES

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NEWS & NOTICES

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ARPA-E: American Grid Optimization (GO) Competition

The Department of Energy's Advanced Research Projects Agency - Energy (ARPA-E) has issued a [funding opportunity](#) for research and development of algorithms to modernize the electric grid. If successful, awardees will participate in Challenge 1 of ARPA-E's [Grid Optimization \(GO\) Competition](#), set to launch in fall 2018. These grants will support research and development of solution methods applicable to optimizing the electric power sector's security-constrained optimal power flow (SCOPF) problem. They are also meant to enable broader diversity in team domain expertise, i.e., to encourage teams to participate that do not traditionally focus on the targeted problems but otherwise have innovative approaches for this class of mathematical programs. Existing grid software was designed for a power grid centered on conventional generation and transmission technologies. Recent years have seen major developments in distributed energy resources (DER), intermittent resources (wind and solar), and storage. These emerging technologies have unique characteristics that could increase the security and efficiency of the nation's

power grid, and ARPA-E is seeking innovative software ideas to maximize their utility for a modern grid. The GO Competition is a series of prize challenges intended to accelerate the development and comprehensive evaluation of grid software solutions. GO Competition participants are not required to pursue this funding opportunity to participate in Challenge 1 of the competition. GO Competition Challenge 1 will begin in fall 2018. [Learn more about the competition.](#)

Full applications are due by 8:30 AM, Friday, September 7, 2018.



DOE: Machine Learning for Geothermal Energy

The Energy Department has announced up to \$3.6 million for 4-6 projects that will focus on early-stage R&D applications in machine learning to develop technology improvements in exploration and operational improvements for geothermal resources. The rapidly advancing field of machine learning offers substantial opportunities for technology advancement and cost reduction throughout the geothermal project lifecycle, from resource exploration to power plant operations. Through this [funding opportunity announcement](#) (FOA), DOE's Office of Energy Efficiency and Renewable Energy Geothermal Technologies Office (GTO) will fund projects to support new analytical tools for finding and developing geothermal resources, to establish the practice of machine learning in the geothermal industry, and maximize the value of the rich datasets utilized in the geosciences.

GTO will provide funding in two areas:

- **Topic 1: Machine Learning for Geothermal Exploration** - GTO seeks projects that advance geothermal exploration through the application of machine learning techniques to geological, geophysical, geochemical, borehole, and other relevant datasets. Of particular interest are projects that will identify drilling targets for future work.
- **Topic 2: Advanced Analytics for Efficiency and Automation in Geothermal Operations** - GTO seeks projects that apply advanced analytics to power plant and other operator datasets, with the goal of improving operations and resource management.

Applicants must submit their concept paper by 5 p.m. ET on Aug. 23, 2018 to be eligible to submit a full application.



NIH: Advanced Mechanistic Probiotic/Prebiotic and Human Microbiome Research (R01)

The purpose of this National Institutes of Health (NIH) [funding opportunity announcement](#) (FOA) is twofold:

- (1) to stimulate basic and mechanistic science that facilitates the development of effective probiotics or pre-/probiotic combinations of relevance to human health and disease; and
- (2) determine biological outcomes for the evaluation of efficacy of pre/probiotics in appropriate test systems and animal models.

The participating organizations include:

- **The National Cancer Institute (NCI)** encourages research on the microbiome and cancer, including the influence of pre/probiotics on functional and molecular profiles in cancer prevention, development and treatment. The Division of Cancer Biology at the NCI is interested in basic/mechanistic studies that seek to understand probiotic's underlying molecular mechanisms of action related to tumor etiology, their interactions with host cells or other resident microbes as it relates to their effects on host cell signaling, physiology or metabolism.
- **The National Institute on Drug Abuse (NIDA)** supports basic, pre-clinical, clinical, and epidemiologic research on drugs of abuse and co-occurring infections (e.g., HIV, HCV) and associated consequences including the impact on human microbiome.
- **The National Institute of Dental and Craniofacial Research (NIDCR)** encourages projects that pertain to the microbiota of the human oral cavity (specifically those communities composed of dentally-relevant archaea, bacteria, and fungi).
- **The National Institute of Arthritis Musculoskeletal and Skin Diseases (NIAMS)** encourages applications that address immune or non-immune mechanisms by which a) the skin microbiome interacts with the skin at homeostasis, and b) the microbiome modulates pathogenesis of the skin, rheumatic and musculoskeletal diseases and conditions at preclinical, clinical onset and chronic phases.
- The **Office of Dietary Supplements (ODS)** is interested in research investigating the role of prebiotics and probiotics on health maintenance and disease prevention.

Standard Application Due Dates Apply: February 5, June 5, October 5

NIH: Cancer Control and Population Sciences (R01)

This National Institutes of Health (NIH) [funding opportunity announcement](#) (FOA) invites applications for research in cancer control and population sciences. The overarching goal is to provide support to promote research efforts on novel scientific ideas that have the potential to substantially advance cancer research in statistical and analytic methods, epidemiology, cancer survivorship, cancer-related behaviors and behavioral interventions, health care delivery, and implementation science. This FOA will promote a diversity of research topics and scientific challenges in the population sciences that lend themselves to a shorter time span and reduced budget. This FOA encourages and supports **Early Stage Investigators** (ESI) and grows the ESI applicant pool and portfolio.

Applications due: November 7, 2018 or March 6, 2019

NIH: Research to Advance Vaccine Safety (R21)

The purpose of this National Institutes of Health (NIH) [Funding Opportunity Announcement](#) (FOA) is to support research that will contribute to the overall understanding of vaccine safety. This research opportunity encourages studies that address scientific areas potentially relevant to vaccine safety, such as:

- (1) characterization of physiological and immunological responses to vaccines and vaccine components, including different adjuvants;
- (2) how genetic variations affect immune/physiological responses that may impact vaccine safety;
- (3) identification of risk factors *e.g.*, infection history, predisposition to or presence of allergic and/or autoimmune disease and biological markers that may be used to assess whether there is a relationship between certain diseases or disorders and licensed vaccines;
- (4) creation/evaluation of statistical methodologies for analyzing data on vaccine safety, including data available from existing data sources such as passive reporting systems or healthcare databases; or
- (5) the application of genomic/molecular technologies and systems biology approaches to evaluate vaccine safety.

This FOA aligns with the research goals and objectives outlined in the [U.S. National Vaccine Plan](#).

Applications due: February 16, June 16, October 16

NSF: Decision, Risk and Management Sciences (DRMS)

The National Science Foundation (NSF) [Decision, Risk and Management Sciences program](#) (DRMS) supports scientific research directed at increasing the understanding and effectiveness of decision making by individuals, groups, organizations, and society. Disciplinary and interdisciplinary research, doctoral dissertation research improvement grants (DDRIGs), and workshops are funded in the areas of judgment and decision making; decision analysis and decision aids; risk analysis, perception, and communication; societal and public policy decision making; management science and organizational design. The program also supports small grants that are time-critical (Rapid Response Research - RAPID) and small grants that are high-risk and of a potentially transformative nature (Early-Concept Grants for Exploratory Research - EAGER). For detailed information concerning these two types of grants, please review Chapter II.E of the [NSF Proposal & Award Policies & Procedures Guide \(PAPPG\)](#). Funded research must be grounded in theory and generalizable. Purely algorithmic management science proposals should be submitted to the [Operations Engineering \(OE\) Program](#) rather than to DRMS.

Full Proposal Target Date: August 20, 2018

NSF: Economics

The National Science Foundation (NSF) [Economics program](#) supports research designed to improve the understanding of the processes and institutions of the U.S. economy and of the world system of which it is a part. This program also strengthens both empirical and theoretical economic analysis as well as the methods for rigorous research on economic behavior. It supports research in almost every area of economics, including econometrics, economic history, environmental economics, finance, industrial organization, international economics, labor economics, macroeconomics, mathematical economics, and public finance. The Economics program welcomes proposals for individual or multi-investigator research projects, doctoral dissertation improvement awards, conferences, symposia, experimental research, data collection and dissemination, computer equipment and other instrumentation, and research experience for undergraduates. The program places a high priority on interdisciplinary research. Investigators are encouraged to submit proposals of joint interest to the Economics Program and other NSF programs and NSF initiative areas. The program places a high priority on broadening participation and encourages proposals from junior faculty, women, other underrepresented minorities, Research Undergraduate Institutions, and EPSCoR states. The program also funds conferences and interdisciplinary research that strengthens links among economics and the other social and behavioral sciences as well as mathematics and statistics.

Searching for collaborators? Visit the [NDSU Scholars database](#).

Full Proposal Target Date: August 20, 2018



NSF/NSFC DCL: Joint Research on Environmental Sustainability Challenges

The NSF Engineering and Geosciences Directorates ([ENG](#) and [GEO](#)) and the National Natural Science Foundation of China ([NSFC](#)) Department of Engineering and Material Sciences (DEMS) and Department of Geosciences are partnering to encourage joint research by U.S.-China teams collaborating on fundamental research that addresses critical environmental sustainability challenges.

This call is for research proposals from joint U.S.-China teams in the environmental sustainability themes of:

"Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS: U.S.-China)"

1. quantitative and computational modeling of a FEW system
2. innovative human and technological solutions to critical FEW systems problems.

[Read the full letter >>](#)



Russell Sage Foundation: Social Inequality Research

The Russell Sage Foundation was established in 1907 for "the improvement of social and living conditions in the United States." In pursuit of this mission, the Foundation now dedicates itself to strengthening the methods, data, knowledge, and theoretical core of the social sciences as a means of diagnosing social problems and improving social policies. To that end, the Foundation's program on [Social Inequality](#), which supports research on the social, economic, political, and labor market consequences of rising economic inequalities in the United States, seeks Letters of Inquiry for investigator-initiated research projects that broaden current understanding of the causes and consequences of rising economic inequalities. Priority will be given to projects that use innovative data or methodologies to address important questions about inequality. Examples of the kinds of topics that are of interest include but are not limited to economic well-being, equality of opportunity, and intergenerational mobility; the political process and resulting policies; psychological and/or cultural change; education; labor markets; child development and child outcomes; neighborhoods and communities; families, family structure, and family formation; and other forms of inequality. Two-year grants of up to \$150,000 will be awarded to qualified organizations. The Foundation encourages methodological variety, but all proposals should have well-developed conceptual frameworks and designs. Analytical models should be specified and research questions and hypotheses should be clearly stated. Awards are available for research assistance, data acquisition, data analysis, and investigator time for conducting research and writing up results.

Letter of Intent due: August 20, 2018; Full application due (by invitation only): November 15, 2018



New 'Broader Impacts' Webpage Provides Resources

A [new webpage](#) has been developed aimed at providing information and resources to plan and carry out activities related to Broader Impacts. A required component of National Science Foundation grant proposals, Broader Impacts has become an important concept to other grant agencies as well. The term is also inclusive of other words used to describe the idea, such as "research impacts," "societal impacts," "public outreach," "broadening participation," and "community engagement." It encompasses the education, knowledge transfer and diversity activities that result from research. Access the new webpage to find guidance and ideas to help you develop a Broader Impacts plan for your grant project.



DOE Provides Access to National Lab Researchers and Information

If the U.S. Department of Energy (DOE) is a potential funder of your research, or if you would like to pursue partnering with a researcher at a DOE national lab, here is some helpful news: the DOE has officially launched the [Lab Partnering Service \(LPS\)](#), an online, single access point platform for investors, innovators, and institutions to identify, locate, and obtain information from DOE's 17 national laboratories. According to Secretary of Energy Rick Perry, "The LPS consolidates information and capabilities at the National Labs to increase public access, allowing industry and academia to fully utilize these vital scientific resources." The LPS has three parts:

- (1) Connect with Experts: Unprecedented access to top national lab researchers will allow investors and innovators to connect with relevant subject matter experts, and receive unbiased and non-competitive technical assessments.
- (2) Technical/Marketing Summaries: Direct access to pre-validated, ready to license, and commercialize technologies.
- (3) Visual Patent Search: Dynamic online search and visualization database tool for patents associated with DOE laboratories.

DOE is one of the largest supporters of [technology transfer](#) in the federal government. The 17 national labs have supported the critical research and development that lead to many technologies in the marketplace today, including the batteries powering electric vehicles and the foundation of Internet servers.



Sponsored Programs News and Events Webpage

As a resource for the campus community, Sponsored Programs has a [News and Events webpage](#) that contains updates on grant related topics such as federal electronic proposal submission systems, sponsoring agency updates and NDSU policy or procedure changes. Sponsored Programs has recently added grant related content from the RCA Update e-newsletter to this webpage so that the information can be readily referenced.

Please contact SPA at ndsuhelp@ndsuhelp.edu with any questions.



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