Research Development & Grant Writing News

Volume 5, Issue 2: October 15, 2014

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! Workshop on Large Team Grants !

Our interactive workshop gives an overview of the successful strategies needed to transition to large team grants such as the NSF STC. Now scheduling for the fall/spring semester. Learn More Here

Our Large Team Grant eBook!

Strategies for Planning, Developing, and Writing Large Team Grants

is a step by step "how-to" guide for faculty and research professionals facing the challenges of transitioning to center-level grants.

Order Here

Our New Faculty Guide eBook

New Faculty Guide to Competing for Research Funding is an invaluable tool for faculty writing research grants and the research offices assisting them. Table of Contents

! Ask about our New Faculty Workshop !

Contact Us For: Grant Writing Workshops; Proposal Reviews; Proposal Editing

About the co-publishers

Mike Cronan, PE (Texas 063512, inactive) has 23 years of experience developing and writing successful proposals at Texas A&M University. He was named a **Texas A&M University System** _Regents Fellow_ (2001-2010) for developing and writing A&M System-wide grants funded at over $100 million by NSF and other funding agencies. He developed and directed two research development and grant writing offices, one for Texas A&M's VPR and the other for the Texas Engineering Experiment Station (15 research divisions state-wide).

Lucy Deckard (BS/MS Materials) worked in research development and grant writing at Texas A&M University and across the A&M System for nine years. She directed A&M's _New Faculty Research Initiative (2004-09)_, helping junior faculty System-wide jumpstart their research careers with federal agency funding. She served as associate director of two research development and grant writing offices. She founded **ARFS** in 2010.

About the editor

Katherine E. Kelly, Ph.D., is a retired English professor from Texas A&M University. She is the author of several books and numerous articles and served as a contributing editor for an academic journal for five years. She provides **editorial services** to _RD&GW News_ and to **ARFS** clients on proposals, journal articles, and manuscripts.

Workshop
Strategies for Planning, Developing and Writing Large Team Grants

An interactive workshop presented by Mike Cronan
mjcronan@gmail.com
Academic Research Funding Strategies, LLC
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ABOUT THE WORKSHOP: This interactive workshop offers a step-by-step "how to" guide to faculty and research offices to help them better meet the unique challenges of successfully writing large team grants (LTG) such as the newly announced NSF Science and Technology Center. *LTGs differ from smaller grants in many ways that make them more challenging to plan, develop and write*. LTGs involve more disciplines, components, and moving parts (i.e., complexity); more team members and team dynamics; more partnered institutions; more time needed to plan, develop, and write; more interdisciplinarity; a clear vision for the synergy required to demonstrate the value-added benefits of team research and center structures; and more development challenges for PIs.

The workshop addresses key LTG topics (below), including, how best to communicate a compelling research vision; demonstrate major value-added benefits to the team structure; achieve research synthesis, integration, and synergy; address multiple program components that build on the research core; offer a management plan that enables the research vision to succeed; propose a convincing research strategic plan over a multi-year performance period; convince program officers and reviewers the proposed research is transformational and not merely incremental; and navigate multiple review gates to funding success.

4-HOUR WORKSHOP SCHEDULE OF TOPICS
- Introduction to Team Grants (30 minutes)
- Interactive Discussion: *Characteristics of a Successful* **Research Vision** (15 minutes)
- Strategic Planning (30 minutes)
- Interactive Discussion: *Characteristics of* **Research Synergy** (15 minutes)
- Proposal Planning and Production (30 minutes)
- Writing the Project Description (30 minutes)
- Writing Key Narrative Sections (30 minutes)
- Characteristics of Successful Narratives (30 minutes)
- Red Teaming and Writing for Reviewers (30 minutes)

SAME DAY POST WORKSHOP INCLUDED CONSULTATIONS: Individual or group consultations with faculty and/or research office staff on workshop topics (e.g., 8 consultations @30 minutes each).

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WORKSHOP COSTS: Cost of the 4-hour interactive workshop and 4-hours of individual consultations with faculty and/or research office staff on presentation topics: **$2,950 plus travel costs**. A second day of consultations is available at a rate of $100/hr (4 hour minimum). Please contact Mike Cronan (**mjcronan@gmail.com; 979-229-8009**) for a full cost quote that will include travel costs. Final workshop cost will be invoiced as one lump sum.

WORKSHOP LOGISTICS: Workshops may be scheduled any day **Monday through Saturday, November 6 to December 6, 2014; February 2 to May 22, 2015**. **CLIENT PROVIDES** all facilities, handouts, and IT set-up support, including presentation room, projector, and computer with compatible version of Microsoft PowerPoint. **PRESENTER PROVIDES** all workshop materials to the client in electronic form for loading on the presentation computer and producing hard copy handouts three days prior to the workshop.

ABOUT THE PRESENTER
Mike Cronan is a research development and grant writing consultant with Academic Research Funding Strategies, LLC. He is the principal co-publisher of the nationally distributed newsletter *Research Development and Grant Writing News*, co-author of the book *New Faculty Guide to Competing for Research Funding*, and author of the book *Strategies for Planning, Developing and Writing Large Team Grants*. He has 23 years of experience developing and writing successful proposals at Texas A&M University (1987-2010). He was named a Texas A&M University System **Regents Fellow** (2001-2010) for developing and writing A&M System-wide grants funded at over $100 million by NSF and other research agencies, 1990-2000. He developed, staffed, and directed two research and proposal development offices at Texas A&M, one for the 15-division, statewide Texas Engineering Experiment Station (1994-2004), and the second for the Vice President for Research (2004-09). Mike Cronan has undergraduate degrees in **civil engineering** (University of Michigan), **political science** (Michigan State University), and an MFA in **English** (University of California-Irvine). He is a registered professional engineer in Texas (inactive).

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Topics of Interest URLs

[Dear Colleague Letter: Veterans Research Supplement (VRS) Program](#)

[The Feynman Lectures on Physics now online](#)

[Excessive regulations turning scientists into bureaucrats](#)

[Successful STEM Education.org](#)

[Federal Funds for Research and Development FYs 2012-14](#)

[New data show how states are doing in science](#)

[The Federal Budget Process 101](#)

[Restoring the Foundation: The Vital Role of Research in Preserving the American Dream](#)

[Take a Look at the Science Research Supported by Federal Funders](#)

[High-tech harvest: Engineering agriculture's future](#)

[Board on Higher Education and Workforce](#)

[National Physical Science Consortium Graduate Fellowships In Science And Engineering](#)

[American Philosophical Society Upcoming Grants](#)

[DARPA Information Innovation Office Solicitations](#)

[Gulf Research Program: A Strategic Vision](#)

[Influence of Global Environmental Change on Infectious Disease Dynamics](#)

[NSF Graduate Research Internship Program (GRIP)](#)

[FAQs for Science and Technology Centers (STC): Integrative Partnerships Program](#)

[Using Remote Sensing in Understanding Permafrost and Related Ecological Characteristics: Workshop](#)

[NIH Research Performance Progress Report (RPPR)](#)

[Career Choices of Female Engineers: A Summary of a Workshop](#)

[New Video Tutorials Can Help You Navigate eRA Commons](#)

[Webinars on What You Need to Know About NIH Application Submission and Review](#)

[National Science Foundation is dedicated to support for The BRAIN Initiative](#)

[Dear Colleague Letter: Closing of Program Solicitation NSF 14-511](#)

[Dear Colleague Letter: Graduate Research Internship Program (GRIP)](#)

[Latinas in STEM: Making Bright Futures a Reality](#)

[NSF Upcoming Events Calendar](#)

[NSF Multi-Year Initiative, the *Professional Formation of Engineers*](#)

[Community College Innovation Challenge](#)

[Bringing People Into Focus: How Social, Behavioral & Economic Research Addresses National Challenges](#)

[ARPA-E Announces $60M in Funding Opportunities for Disruptive Energy Technologies](#)

[ARPA-E FY 2015 Budget Request](#)

[Department of Energy FY 2015 Budget Justification](#)

[FY15 Nancy Foster Scholarship Program](#)

[Office of Weather and Air Quality Hazardous Weather and Hydrometeorology Testbed Competitions](#)

Summary: Restoring the Research Foundation

By **Mike Cronan**, co-publisher

This 152-page report (September 14, 2014) by a blue ribbon committee of the National Academy of Arts and Sciences entitled *Restoring The Foundation: The Vital Role of Research* is a call to action for a more strategically planned and more robust national investment in science and engineering at the level of basic research. The report calls for a re-examination and strengthening of the research partnerships among universities, federal research agencies, and industry. The report is based on the observation that the long-term robustness of the U.S. economy post-WW2 is largely based on the federal government's investment in basic research, yet that investment has declined precipitously in recent years.

The report states: "The American research enterprise is at a critical inflection point. The decisions that policy-makers and leaders in science, engineering, and technology make over the next few years will determine the trajectory of American innovation for many years to come. Recent data show that the United States has slipped to tenth place among OECD (Organization for Economic Co-operation and Development) nations in overall research and development investment as a percentage of GDP and continues to fall short of the goal of at least 3 percent adopted by several U.S. presidents. As we lose our global competitive edge, many emerging nations are increasing their research investments in order to stimulate economic growth."

Reading through the entire 152-page report is a bit of a slog, particularly since many of its recommendation call for significant change in the funding, operations, partnerships, and collaborations of the national research enterprise. To make the case, a significant portion of the report presents an historical overview of the post-WW2 U.S. research enterprise, particularly noting what worked to make the U.S. a global leader in R&D investment and innovation and hence an economic juggernaut—that is, until the U.S. arrived at the "critical inflection point" mentioned above.

The report notes that economic prosperity is an outgrowth of a nation's investment in basic research, R&D, technology transfer, and innovation. Universities play a central role in the key factors that lead to a nation's economic success. For example, Apple's current annual R&D investment now totals some $10 billion per year, according to CEO Tim Cook in a recent interview on PBS, ***more than the entire NSF annual budget of roughly $7.4 billion***. The report cites Apple's iPhone, however, observing "that it depends on seven or eight fundamental scientific and technological breakthroughs, such as GPS, multi-touch screens, LCD displays, lithium-ion batteries, and cellular networks. How many of those discoveries were made by Apple? None. ***They all came from research supported by the federal government and conducted in universities and government laboratories***."

"Innovation relies on breakthrough discoveries that are primarily the products of fundamental, curiosity-driven research," the report argues. Yet companies in the private sector are competing in a market environment driven by short-term results, thereby lessening support from the private sector for funding long-term basic research. "It is therefore worrisome," the report notes in this context, "that federal support for basic research has dropped 13 percent

below the level measured ten years ago as a percentage of GDP." Moreover, the report continues: "Compounding this problem, few mechanisms currently exist at the federal level to enable policy-makers and the research community *to set long-term priorities in science and engineering research*, bring about necessary reforms of policies that impede progress, or facilitate stronger cooperation among the many funders and performers of research (including universities, corporations, federal and state government, and philanthropic and nongovernmental organizations)."

"In response to these concerns," the report notes, "the American Academy of Arts & Sciences assembled a committee of recognized leaders from all sectors of science, engineering, and technology, including former CEOs, university presidents and deans, and government officials, to recommend policy actions to help ensure the long-term sustainability of the U.S. science and engineering research enterprise."

"The committee based its work on three premises: first, that a strong U.S. economy is vital to the welfare and prosperity of the American people; second, that competitiveness in today's accelerating high-tech, knowledge-based economy requires innovation and the rapid infusion of new knowledge and technologies; and third, that while applied research and applied development are both undeniably important, path breaking discoveries are most likely to come from basic research sustained over long periods of time, *which is mainly funded by the federal government and carried out in the nation's universities and national laboratories*."

The committee's recommendations focus on three overarching objectives: "First, to secure America's leadership in science and engineering research–especially basic research– by providing sustainable federal investments. Second, to ensure that the American people receive the maximum benefit from federal investments in research. Third, to regain America's standing as an innovation leader by establishing a *more robust national government-university-industry research partnership*."

Specific to the role of universities in the nation's future research enterprise, the report made the following recommendations:

- Experiment with new intellectual property policies and practices that favor the creation of stronger research partnerships with companies over the maximization of revenues;
- Adopt innovative models for technology transfer that can better support universities' mission to produce and export new knowledge and educate students;
- Enhance early exposure of graduate students (including doctoral students) to a broad range of nonresearch career options in business, industry, government, and other sectors, and ensure that they have the necessary skills to be successful;
- Expand professional master's degree programs in science and engineering, with particular attention to students interested in nonresearch career options; and
- Increase permeability across sectors through research collaborations and faculty research leaves.

Moreover, the report recommends that "corporate boards and chief executives give higher priority to funding research in universities and work with university presidents and boards to *develop new forms of partnership*: collaborations that can justify increased company

investments in university research, especially basic research projects that provide new concepts for translation to application and are best suited for training the next generation of scientists and engineers."

"Universities depend on federal funding for most of the research carried out by their faculty and students," the report notes, "thus continuing the federal government-university partnership that was established during World War II and expanded into the civilian realm thereafter. But in more recent decades, a number of policy issues have emerged that limit the effectiveness of the partnership. These issues, described in studies such as the National Academies National Research Council report *Research Universities and the Future of America*, *include policies and practices that are viewed by university researchers and administrators as burdensome, inefficient, and costly*, and that vary without apparent justification from agency to agency. Universities also argue that the administrative overhead allowed by the OMB does not cover the cost of managing federal research grants and dealing with an ever-increasing compliance burden."

"At the same time," the report continues, "the nation's universities, especially its public universities, *are facing a perfect storm of steadily decreasing state support combined with increasing requirements and expectations; pushback from parents on tuition increases; flat or decreasing federal research funding; and overhead rates that fall short of paying the full cost of federally funded research*. Increased regulations and requirements that add to the administrative workload of university staff and administrators, and often evolve into unfunded mandates, have also made it increasingly difficult for universities to work with the federal government. *On top of this, faculty are required to spend increasing amounts of time writing proposals for dwindling federal funds*, submitting progress reports, reviewing proposals of colleagues that have little chance of being funded, attending study review sections, and focusing on additional administrative tasks that take time away from both research and teaching. Though some have argued that the nation has too many researchers, it would be far more accurate to state that certain fields have more researchers than the nation has elected to support."

"For universities, early rationales for taking on the immense task of building up internal infrastructure to support technology transfer were heavily based on the perceived potential to generate revenue for the university. In reality, this growth has presently only been experienced by a few universities, including MIT, Stanford University, University of Wisconsin, and Columbia University. In 2012, the top eight universities collected half of the total licensing income of the entire university system; the top ten took 70 percent of the total. High returns tend to be the result of one blockbuster patent. *Consequently, only 16 percent of university TTOs (Technology Transfer Offices) are currently self-sustaining*," the report notes.

In conclusion, the report states that "Today, the United States *needs a new kind of research partnership*: a robust national effort involving government (federal and state), universities (public and private), and industry, as well as philanthropy and private foundations, in which each sector accepts and fulfills its responsibilities in support of the nation's leadership in science and engineering research, especially basic research. Other countries recognize this need and are taking active steps to put such national government – university - industry research partnerships in place. Yet in the United States, the accumulation of decades of policies

and practices in each sector, as well as shifting priorities of the states and unpredictable federal research funding levels, are allowing our nation to steadily fall behind. The innovation deficit looms large."

Finally, the report recommends that "the President or Vice President convene a '***Summit on the Future of America's Research Enterprise***' with participation from all government, university, and industry sectors and the philanthropic community. The Summit should have the bold action agenda to: assess the current state of science and engineering research in the United States in a global twenty-first century context; review successful approaches to bringing each sector into closer collaboration; determine where further actions are needed to encourage collaboration; and form a new compact to ensure that the United States remains a leader in science, engineering, technology, and medicine in the coming decades."

While this article represents a 3.5-page summary of the 152-page report, there is much in the report that ***provides insight into where university research offices can go in the future to align with the need to reinvigorate our national basic research enterprise***, particularly as that relates to making the research development process less burdensome to faculty and in configuring strategic research collaborations and partnerships among universities, industry, and federal agencies. ***It is clear here, too, that the research funding environment in the future, as envisioned in the report, will be dominated by large partnership grants***.

Since the report was published only a month ago, it will take time for its analysis and recommendations to percolate through the national research enterprise, but historically on such key reports this has always been the trajectory. Consequently, ***the report gives insight into what the national research enterprise will look like in the future*** if its call for action at a "national inflection point" is heeded by universities, funding agencies, and industry.

What Is Big Data and How to Fund It

By **Mike Cronan**, co-publisher
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Big Data is used in an infinite number of domains, from sabermetrics in baseball made famous in Michael Lewis' 2003 book *Moneyball,* to the Large Hadron Collider experiments in which 150 million sensors deliver data 40 million times per second on 600 million collisions a second, only 100 of which might be of interest, to the data required for genomic analysis. Regardless of the domain, Big Data requires the capacity to store, analyze, search, share, transfer, and visualize large data sets automatically generated in countless ways, from satellite sensors to the NSA's capturing of global cell phone conversations for threat analysis.

So how big is Big Data? This is becoming more a metaphysical question such as medieval theologians struggled with when postulating how many angels can dance on the head of a pin. When it comes to Big Data, think of GOOGOLs of data points (1 followed by 100 zeros) from which Google took its name, to get a sense of where all this is heading. The old political axiom "*if you reward it you will get more of it*" might be rephrased for Big Data as "*if you can capture and store it you will get more of it*." In baseball, for example, digital cameras are now used to record the action of every player 30 times a second to get better data for player evaluation, as noted in the *Wall Street Journal* article of September 15 "*Billy Beane Expects Big Things from MLB's Big Data Play*."

Fortunately for research offices, a Big Data domain exists that is both more knowable and fundable than these examples might suggest. For example, a search of Grants.gov using the keywords "Big Data" turns up 644 currently open research solicitations across the key federal agencies of interest to university researchers related to this topic area, as the below sample solicitations from NIH's Big Data to Knowledge (BD2K) program illustrate (a search on "data analytics" will also give related information).

The BD2K Vision, according to NIH, is "*To enable biomedical research as a sustainable digital research enterprise to facilitate discovery and support new knowledge and maximize community engagement*." The BD2K Mission, according to NIH, "aims to develop the new approaches, standards, methods, tools, software, and competencies that will enhance the use of biomedical Big Data by supporting research, implementation, and training in data science and other relevant fields." (See NIH *Request for Information* (RFI): *Input on Information Resources for Data-Related Standards Widely Used in Biomedical Science* for more background.)

Referenced table of solicitations follows on next page.

1 - 25 OF 644 MATCHING RESULTS:			« Previous **1** 2 3 4 5 6 … 26 Next »	
Funding Opportunity #	**Opportunity Title**	**Agency**	**Open Date**	**Close Date**
RFA-HG-14-007	Mentored Career Development Award in Biomedical Big Data Science for Clinicians and Doctorally Prepared Scientists (K01)	National Institutes of Health	01/15/2014	04/01/2015
PA-14-156	Extended Development, Hardening and Dissemination of Technologies in Biomedical Computing, Informatics and Big Data Science (R01)	National Institutes of Health	03/14/2014	05/07/2017
PA-14-155	Early Stage Development of Technologies in Biomedical Computing, Informatics, and Big Data Science (R01)	National Institutes of Health	03/14/2014	05/07/2017
RFA-HG-14-005	Revisions to Add Biomedical Big Data Training to Active Institutional Training Grants (T32)	National Institutes of Health	04/22/2014	07/28/2016
RFA-HG-14-006	Revisions to Add Biomedical Big Data Training to Active NLM Institutional Training Grants in Biomedical Informatics (T15)	National Institutes of Health	04/22/2014	07/28/2016
RFA-HG-14-004	Predoctoral Training in Biomedical Big Data Science (T32)	National Institutes of Health	04/22/2014	07/27/2015
RFA-HG-14-008	Courses for Skills Development in Biomedical Big Data Science (R25)	National Institutes of Health	01/16/2014	04/01/2016
PA-14-154	Early Stage Development of Technologies in Biomedical Computing, Informatics, and Big Data Science (R43/R44)	National Institutes of Health	03/14/2014	05/07/2017
PA-14-157	Early Stage Development of Technologies in Biomedical Computing, Informatics, and Big Data Science (R41/R42)	National Institutes of Health	03/14/2014	05/07/2017
RFA-HG-14-009	Open Educational Resources for Biomedical Big Data (R25)	National Institutes of Health	01/16/2014	04/01/2016

Moreover, private foundations, such as the *Gordon and Betty Moore Foundation*, also fund research under the "Big Data" umbrella, e.g., the $60 million Stimulating Data Science Innovation for Research program. The *Alfred P. Sloan Foundation* funds Data and Computational Research (see Sloan Foundation Grant Helps Globus Democratize Data Science), as does the *Bill and Melinda Gates Foundation*. According to *Inside Philanthropy*, "Data science is scorching hot right now, in headlines, board rooms, university plans, and yes, philanthropy. At least five schools have scored multi-million-dollar grants for data science initiatives just in the past year (see Who's Getting the Big Bucks for Data Science? And Why?). Also see the Council on Foundations webinar Leading Forward: The Practices and Opportunities of Big Data in Philanthropy. Also see the Simmons Foundation webinar of March 7, 2014: Perspectives on Big Data in Biology.

For example, in April of 2014 a statewide partnership published the 94-page action report entitled *Massachusetts Big Data Report: A Foundation for Global Leadership* outlining strategic and collaborative partnership efforts with academia, industry and public sector organizations. Also see Nanotechnology and big data - the next industrial revolution? to see the role of Big Data in areas from nanotechnology to ubiquitous sensing to robotics and unmanned vehicles for space exploration.

The impetus for Big Data research funding comes from many sources. For example, the Office of Science and Technology Policy directive of March 29, 2012 "Obama Administration Unveils "Big Data" Initiative: Announces $200 Million In New R&D Investments" helped set the strategic direction for Big Data research funding at six federal agencies: NSF, NIH, DOD, DOE, DARPA, and USGS. As an example, the NSF directive explains the Big Data strategy at the National Science Foundation as follows: "In addition to funding the Big Data solicitation, and keeping with its focus on basic research, NSF is implementing a comprehensive, **long-term strategy that includes new methods to derive knowledge from data; infrastructure to manage, curate, and serve data to communities; *and new approaches to education and workforce development*.**"   The ubiquitous NSF mantra of integrating research and education

applies to Big Data in a unique way in relation to the future scientific workforce. See NSF Laying the groundwork for data-driven science and Computational and Data-Enabled Science and Engineering (CDS&E).

This is clear from the NSF's Big Data Initiative solicitation with a due date this past June. Three areas were targeted: (i) big data and knowledge management; (ii) big data and knowledge analytics; and (iii) scientific discovery and innovation processes impacted by big data. This solicitation is a part of a larger national "Big Data Initiative", which covers a wide range of topics: big data infrastructure; education and workforce development; and multi-disciplinary collaborative teams and communities that address complex scientific, biomedical and engineering grand challenges.

Finally, in terms of seeing the future, DARPA's Big Mechanism Program indicates future research directions: "DARPA's Big Mechanism program aims to leapfrog state-of-the-art Big Data analytics by **developing automated technologies to help explain the causes and effects that drive complicated systems**."

"Big Mechanisms are large, explanatory models of complicated systems in which interactions have important causal effects. The collection of Big Data is increasingly automated, but the creation of Big Mechanisms remains a human endeavor made increasingly difficult by the fragmentation and distribution of knowledge. To the extent that the construction of Big Mechanisms can be automated, **it could change how science is done**."

DARPA uses the following analogy for the **relationship of Big Data to Big Mechanisms**: "An 1854 map of London by Dr. John Snow, . . . helped stop a cholera outbreak by identifying an association between cholera cases and a polluted public water pump. ***Snow's maps were a 19th-century version of Big Data***. More than 150 years later, Big Data is vastly bigger, but human ingenuity is still required to leap from tracking associated data points ***to discovering the causal mechanisms behind that data***. DARPA's Big Mechanism program aims to change that paradigm by ***developing automated systems that could find causal models hidden in Big Data***."

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A Directory to NIH Resources on the Web

By Lucy Deckard, co-publisher

NIH provides extensive resources and information on the web to help researchers understand their funding process and produce more competitive proposals to NIH, and they keep adding more. Researchers, particularly those who are early in their careers, are well-advised to take advantage of these resources, but much of the information is dispersed and some very useful resources can easily be overlooked.

Below is an annotated directory of helpful resources posted by NIH as well as others. This list is not comprehensive but should provide a good start for researchers who wish to learn more about NIH. Many of the resources listed are from the National Institute of Allergy and Infectious Diseases (NIAID), which has made outreach a priority, but most apply to all of NIH, so don't overlook them just because you don't plan to apply to NIAID.

Most of these webpages contain many more links, so you can easily spend hours perusing all the information provided. Keep this list and add to it as you discover new NIH resources on the web. (Remember that over time agencies often reorganize their websites, and the specific URLs may no longer work, but you can usually locate the resource by googling key words describing the resource.)

Finding Funding

Resource: NIH Guide: All Active RFAs
Location: http://grants.nih.gov/grants/guide/search_results.htm?year=all&scope=rfa
Description: Lists all active NIH Requests for Applications (RFAs) and provides links as soon as they are announced

Resource: NIH Guide: All Active PAs
Location: http://grants.nih.gov/Grants/guide/search_results.htm?year=active&scope=pa
Description: Lists all active NIH Program Announcements (PAs) and provides links as soon as they are announced

Resource: Advanced OER Web Search
Location: http://grants.nih.gov/grants/search.htm
Description: Allows you to search all active NIH funding opportunities for key words and phrases (click "NIH Guide only" option)

Understanding NIH

Resource: NIH Institutes, Centers & Offices
Location: http://www.nih.gov/icd/
Description: Links to each NIH IC

Resource: NIH RePORTER Online Database
Location: http://projectreporter.nih.gov/reporter.cfm
Description: Powerful searchable database of funded projects

Resource: Using RePORTER to find your place at NIH (Video)

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Location: https://www.youtube.com/watch?v=CrSXdRg2_c0
Description: Video made by us on how to use RePORT to identify ICs and NIH staff who might be interested in your research, understand what has been funded on the topic, and even identify funding opportunities.

Resource: **NIH Research Portfolio Online Reporting Tools (RePORT)**
Location: http://report.nih.gov/
Description: Portal to almost any data you could want about NIH, including funding rates by IC, type, year, location, as well as links to strategic plans for each IC (under "reports") and much more.

Resource: **All about Grants Podcasts**
Location: http://grants.nih.gov/podcasts/All_About_Grants/index.htm
Description: Podcasts about the ins and outs of NIH funding. The most recent posted is from 2013, but still helpful to those who are new to NIH

Resource: **NIH Enterprise Directory (NED)**
Location: https://ned.nih.gov/search/search.aspx
Description: Directory of NIH personnel with their contact info. You can search by IC or across all of NIH.

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Resource: **Grants & Funding Listservs and RSS**
Location: http://grants.nih.gov/grants/listservs_and_rss.htm
Description: Subscribe to key NIH listservs and RSS feeds

Resource: **NIAID Email Alerts Subscription Center**
Location: http://www.niaid.nih.gov/researchfunding/newsletter/pages/subscribe.aspx
Description: Subscribe to a wide range of alerts, including news on Concepts and potential funding opportunities, NIAID's funding newsletter and more, tailored to your preferences

Resource: **NIAID Newsletter**
Location: http://www.niaid.nih.gov/researchfunding/newsletter/pages/default.aspx
Description: In addition to information specific to NIAID, the newsletter includes more general advice on writing NIH proposals (e.g., in October's newsletter they discuss how to make sure your new application is really new).

Resource: **Rock Talk Blog**
Location: http://nexus.od.nih.gov/all/category/blog/
Description: Newsy and very helpful blog on various aspects of competing for NIH grants by NIH Extramural Research Deputy Director Sally Rockey

Resource: **NIH Tweets**
Location: https://twitter.com/NIHgrants
Description: For those who tweet – up-to-date news from NIH's extramural research office

Preparing Your Application

Resource: **Grant Application Basics**
Location: http://grants.nih.gov/grants/grant_basics.htm

Description: Basic overview of the NIH grants process, what they are looking for, etc.

Resource: **Grants Process Overview**
Location: http://grants.nih.gov/grants/grants_process.htm
Description: Steps PIs through the entire grant process from finding funding opportunities to award management

Resource: **Strategy for NIH Funding**
Location: http://www.niaid.nih.gov/researchfunding/grant/strategy/pages/default.aspx
Description: Ten steps to winning an R01 application. (You can reach this from the NIAID All About Grants site, but it's easy to miss.)

Resource: **Grant Writing Tips Sheets**
Location: https://grants.nih.gov/grants/grant_tips.htm
Description: A nice way to find links to many grant writing resources (some of which are also listed here)

Resource: **Sample Applications and Summary Statements**
Location: http://www.niaid.nih.gov/researchfunding/grant/pages/appsamples.aspx
Description: One of the best NIH resources on the web: sample R01, R21 and R31 applications that scored well, annotated by NIH

Resource: **NIAID All About Grants**
Location: http://www.niaid.nih.gov/researchfunding/grant/pages/aag.aspx
Description: Extremely valuable: advice, strategies, and information for investigators preparing grant applications for funding from any of the ICs at NIH

The Review Process

Resource: **NIH Grant Review Process YouTube Videos**
Location: http://public.csr.nih.gov/aboutcsr/contactcsr/pages/contactorvisitcsrpages/nih-grant-review-process-youtube-videos.aspx
Description: Videos showing how study sections work as well as popular NIH outreach talks about various aspects of NIH funding

Resource: **Study Section Rosters**
Location: http://public.csr.nih.gov/StudySections/Pages/default.aspx
Description: Lists of study sections, integrated review groups and special emphasis panels with their members.

News, Discussion, Opinions from Outside NIH

Resource: **Medical Writing, Editing & Grantsmanship**
Location: http://writedit.wordpress.com/
Description: Collection of various news, gossip, insights related to NIH and biomedical funding; the links on the right of the page also provide another way to find many helpful NIH sites.

Resource: **DrugMonkey blog**
Location: http://drugmonkey.wordpress.com/
Description: External blogs and chat groups are a good way to keep up with gossip and the less official kind of info – just take the info/opinions with a grain of salt. This blog focuses on drug abuse science but also has some interesting discussions about NIH and pursuing funding.

Introducing New Investigators to BAAs

By Lucy Deckard, co-publisher
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In many ways, BAAs (Broad Agency Announcements) are to agency program announcements as dark matter is to the known or visible universe, at least so it may seem to many new and junior faculty embarking upon a research career, or others in research offices new to the research development and grant writing enterprise. Fortunately, BAAs are much more easily detected in the universe of funding opportunities than their dark matter counterpart, which must be inferred, for example, from gravitational effects on visible matter or other means.

However, a Grants.gov Search Grants query on key word "BAA" results in 76 currently open BAAs across federal agencies with open dates extending as far back as 2010 and close dates as far in the future as 2019. BAAs are general in nature and can change significantly in priority research areas during the open period, which can last from one to five or more years. BAAs are most often published by federal mission agencies, such as DOD and the various research labs and the Department of Energy, among others, whereas they are not used by an agency such as NSF.

The BAA is a competitive solicitation used by federal mission agencies to obtain proposals for (1) basic and applied research, and (2) development unrelated to building a specific system or procuring hardware. Agencies may use BAAs to fulfill their requirements for scientific study and experimentation directed toward advancing the state-of-the-art or increasing knowledge or understanding rather than focusing on a specific system or hardware solution. Typically, the BAA:

- Describes the agency's research interest *in general terms*, either for an individual program requirement or for *broadly defined areas of interest* covering the full range of the agency's mission requirements;
- Describes the application and submission process, particularly any requirements for *approval waypoints*, such as quad-charts, white papers, preliminary proposals, and preapplications required to be invited to submit a full proposal;
- Describes the criteria for selecting the proposals, their relative importance, and the method of evaluation;
- Specifies the period of time during which proposals submitted in response to the BAA will be accepted;
- Provides information for *tracking BAA modifications* over long, open periods;
- Designates a *Point of Contact* (POC) specific to agency research topic areas.

One advantage of providing new and junior faculty a detailed introduction to BAAs is that they represent a suite of informational requirements that serve as a rich learning tool related to writing successful proposals, thereby helping faculty fairly new to grant writing build

a more comprehensive understanding of what constitutes a competitive proposal and the factors that impact competitiveness. For example, BAAs typically clarify

- the importance of *talking about your proposed research to a program officer* or BAA POC (point of contact) prior to writing a proposal, preliminary proposal, or white paper;
- the importance of *linking the proposed research to the agency mission priorities* detailed or referenced in the BAA;
- the nature of basic or fundamental research as opposed to applied research;
- the importance of having a thorough *knowledge of an agency's mission priorities* to ensure that proposed research brings value-added benefits to the agency mission;
- the importance of following submission and format requirements;
- the importance of reading through a complex set of instructions carefully and being able to resolve ambiguities that may be inherent to a general BAA to make sure an applicant can fit the agency's research priorities;
- how to *write a white paper* as a first step towards writing a full proposal;
- how to track an agency's research priorities as they change over time; and
- how an agency will review and evaluate a proposal.

The following BAA was published a few weeks ago and remains open until September 15, 2015. It is typical of BAAs and will serve as a good reference point for continued discussion in this article: **ONRBAA15-001 Long Range BAA for Navy and Marine Corps Science and Technology**. The BAA program synopsis states: "The Office of Naval Research (ONR) is interested in receiving proposals for Long-Range Science and Technology (S&T) Projects which offer potential for advancement and improvement of Navy and Marine Corps operations. Readers should note that this is an announcement to declare ONR's broad role in competitive funding of meritorious research across a spectrum of science and engineering disciplines. A brief description of the ONR Program Codes and the science and technology thrusts that ONR is pursuing is provided below. Additional information can be found at the ONR website at http://www.onr.navy.mil/Science- Technology/Departments.aspx . Potential Offerors are urged to check the program areas that they are interested in throughout the year for updates to thrust areas and research priorities on the ONR website at http://www.onr.navy.mil . Prior to preparing proposals, potential offerors are strongly encouraged to contact the ONR point of contact (POC). To identify the POC, follow the link for the appropriate code or division listed below and then click on the link to the thrust or topic area. Each thrust or topic area will provide a POC or e-mail address."

The two key points here are generic to most BAAs regardless of agency or mission priorities: (1) Potential Offerors are urged to check the program areas of interest throughout the year *for updates to thrust areas and research priorities* on the ONR website at http://www.onr.navy.mil; and (2) Prior to preparing proposals, potential offerors are *strongly encouraged to contact* the ONR point of contact (POC). *BAAs typically encourage potential applicants to contact the agency POC to discuss the relevance of their research to the agency mission priorities before preparing proposals.*

This is excellent advice beyond the domain of BAAs and should be something that new and junior faculty become comfortable doing. Moreover, it offers research offices a good

opportunity to discuss with new and junior faculty the general protocols for talking to BAA POCs or program officers in general. The first point to be made is that talking to potential research applicants is an important part of the job for POCs and program officers alike. After all, research agencies depend on finding researchers that can advance the mission objectives of the agency, particularly finding the next generation of researchers that will ensure the long-term success of the agency. Sometimes those new to grant writing are hesitant to call a program officer, but there is no need to hesitate. *Two immutable laws governing grant writing are that timidity is never rewarded and ambiguity is always punished by reviewers*.

In many cases, BAAs will address the general protocol for contacting a POC, but in general, regardless of contacting a POC or a program officer, *there are some generic protocols to remember*. First, *do your due diligence before you call* or, preferably, email about setting a date and time to talk to a POC or PO. Make sure you have thoroughly explicated the BAA or the program solicitation before you make contact. Don't waste a program officer's time asking questions that you can easily answer for yourself by carefully reading the BAA or program solicitation. Expand beyond that--if you are not knowledgeable about the mission and culture of a particular agency or program area within an agency issuing the BAA, find out all you can from looking at the agency website, strategic reports, or talking to colleagues familiar with the agency.

When you do call, have a list of questions you would like to ask and get to the point of those questions quickly. Remember it is a business call and not a social call. *Do not ask questions that require the POC or program officer to speculate on outcomes*, such as "*What do you think my chances are of being funded*?" Keep in mind also that in many mission agency program areas, the program managers have significant, and in some cases total, influence over the funding outcomes of proposals. You want to convince them your research will make a significant contribution to the agency's research objectives.

Moreover, don't forget to do some background searching on the POC or program officer. Sometimes their CV or a biographical profile will be on the agency website, or you can do a Google search to find information on the technical background of the POC or program officer. *The more you know about the agency, the agency's research priorities, and the background of the POC or program officer, the more you will be able to guide the conversation in a way that is favorable to your proposed research*. Also, many agencies have abstracts of recently funded programs on their website. In those cases where descriptions of recent prior awards are posted online, a valuable source of nuanced information exists about what the agency seeks in a particular research domain. In some cases, you may even want to contact the PI of a recent award to inquire about her experience with the agency. Of course, this hoped for generosity presupposes that your research topic and that of the funded PI's are not in direct competition, but typically this is not the case.

BAAs will clarify how evaluations will be conducted on proposals submitted to the agency. While these may differ by agency, the following evaluation criteria typically form the basis for judging proposals. In the case of basic research, a peer-review process is typical. These evaluation criteria have to be kept in mind when talking to a POC or when submitting a white paper or proposal to the agency. Bottom line—the below are a guide to submitting a

competitive proposal that places your proposed research into the context of the mission critical research domain the agency will fund.

1. Overall scientific and technical merits of the proposal.
2. Potential Naval relevance and contributions of the effort to the agency's specific mission.
3. The offeror's capabilities, related experience, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives.
4. The qualifications, capabilities, and experience of the proposed Principal Investigator (PI), team leader, and key personnel critical to achieving the proposal objects, and
5. The realism of the proposed costs and availability of funds.
6. Criteria 1 through 4 are of equal value and they are significantly more important than Criterion 5.

In considering the above, keep in mind Heilmeier's Catechism specific to what a proposal has to answer to convince POCs and reviewers to fund your proposed research:

- What are you trying to do? Articulate your objectives using absolutely no jargon.
- What is the problem? Why is it hard?
- How is it done today, and what are the limits of current practice?
- What's new in your approach and why do you think it will be successful?
- Who cares?
- If you're successful, what difference will it make?
- What are the risks and the payoffs?
- How much will it cost?
- How long will it take?
- What are the midterm and final "exams" to check for success?

Finally, perhaps the most important learning tool of BAAs is the ***common requirement of submitting a white paper to start the process of determining whether a full proposal is warranted*** and whether your proposed research maps tightly to the agency research mission objectives. Keep in mind as well that a 3- to 5-page white paper often represents roughly 25 percent of a full proposal, or perhaps 300% of a project abstract or project summary. Why is this important? It is important because a well-written 4- or 5-page white paper that addresses the above questions posed in Heilmeier's Catechism in a clear and concise way, inclusive of the five generic evaluation criteria also listed above, will make a convincing case to the POC that your research is of high value to the agency. A successful white paper will form the "***ideas framework***" for a full proposal by expanding it with detail and specificity, or it can be distilled to a very tightly written and clear one-page project summary or elevator speech that can be used to first interest POCs and program officers in the value and benefits of funding your research.

The difficult intellectual work has already been done in a well-written white paper— you have explained what you will do, how you will do it, why it is significant, why you have the capacity to do it, and demonstrated the value-added benefits of your proposed research

to the agency mission or to the field. New and junior faculty, in fact anyone writing research grants to funding agencies, as well as those assisting them in research offices, must develop the skill set needed to write compelling and convincing white papers, or to be an internal reviewer of white papers. BAAs offer many excellent ways to practice and hone that skill as part of the research development and grant-writing process.

Research Development & Grant Writing News

BRAIN Research and Funding

By Lucy Deckard, co-publisher
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"The human brain has 100 billion neurons, each neuron connected to 10 thousand other neurons. Sitting on your shoulders is the most complicated object in the known universe."
Michio Kaku, Henry Semat Professor of Theoretical Physics at the City College of New York.

Two weeks ago, the White House issued the following Fact Sheet: Over $300 Million in Support of the President's BRAIN Initiative, a progress report on the April 2013 launch of the BRAIN (**Brain Research through Advancing Innovative Neurotechnologies**) Initiative, billed as a bold new Grand Challenge focused on revolutionizing our understanding of the human brain. Simultaneously, NIH announced investments totaling $46 million in FY2014--funds to support the goals of the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative.

In announcing the awards, NIH noted that "More than 100 investigators in 15 states and several countries will work to develop new tools and technologies to understand neural circuit function and capture a dynamic view of the brain in action. These new tools and this deeper understanding will ultimately catalyze new treatments and cures for devastating brain disorders and diseases that are estimated by the World Health Organization to affect more than one billion people worldwide." However, not all neuroscientists agree with the "circuits approach," according to an article in the MIT Technology Review, Obama's Brain Project Backs Neurotechnology, nor do all European scientists in a companion article, Neuroscientists Object to Europe's Human Brain Project.

Regardless of approach, however, faculty from a very wide range of research areas and the research offices that support them share a single important goal: to create a coordinated strategic plan, or even a loosely aligned action plan, for institutional research configurations and research teams that can successfully compete for funding under the BRAIN Grand Challenge, particularly at the five federal agencies who have made significant funding commitments in this area: NIH, NSF, DARPA, IARPA, and FDA.

NIH, for example, has a newly published (June, 2014) 146-page 12-year Strategic Plan for BRAIN Research: BRAIN 2025, A Scientific Vision. While the strategic plan is an NIH document, it was developed in collaboration with the other major agencies engaged in BRAIN research. This should be considered "required reading" for at least one person from a research office involved in supporting faculty in the development and writing of BRAIN proposals, particularly large-team proposals where it will be important to describe the state of the proposed research to the field and within the context of federal agency priority investments in BRAIN research (see NIH Announces 12-Year BRAIN Initiative).

Moreover, the recently released Fact Sheet notes: "Since the Initiative's launch, the Defense Advanced Research Projects Agency (DARPA), the National Institutes of Health (NIH), and the National Science Foundation (NSF) have already made significant BRAIN-related grant awards and issued solicitations. ***In addition, the President's FY15 Budget proposes to double***

the Federal investment in the BRAIN Initiative for these three agencies from about $100 million in Fiscal Year 2014 (FY14) to approximately $200 million in FY15. Moreover, two new Federal agencies have joined the BRAIN Initiative, with IARPA planning to sponsor several research programs to support the goals of the BRAIN Initiative and with FDA working to enhance the transparency of the regulatory landscape for neurological medical devices that will be developed as part of the BRAIN Initiative."

A relatively new agency, IARPA notes that it is "joining the BRAIN Initiative and will use multidisciplinary approaches to advance understanding of cognition and computation in the brain. As part of its mission to invest in high-risk, high-payoff research to tackle some of the most difficult challenges in the Intelligence Community, IARPA plans to continue sponsoring several applied research programs that use multidisciplinary approaches to advance our understanding of cognition and computation in the brain. Programs planned for FY15 include: the Knowledge Representation in Neural Systems (KRNS) program, which seeks insights into the brain's representation of conceptual knowledge; the Strengthening Human Adaptive Reasoning and Problem-solving (SHARP) program, which will develop non-invasive neural interventions for optimizing reasoning and problem-solving; and the Machine Intelligence from Cortical Networks (MICrONS) program, which will reverse-engineer the algorithms of the brain to revolutionize machine learning."

The Fact Sheet notes that "NSF continues its support of the BRAIN Initiative (see Understanding the Brain) by accelerating fundamental research and the development of new technologies for neuroscience and Neuroengineering. In FY14, NSF funded 35 Early-concept Grants for Exploratory Research (EAGER) awards for innovative approaches and neurotechnologies to understand the brain. NSF also funded many more interdisciplinary neuroscience projects that span computing, engineering, and the mathematical, physical, life, social, and behavioral sciences. ***In the next year, NSF will invest in new interdisciplinary and transdisciplinary research and workforce development through a call for research on Integrative Strategies for Understanding Neural and Cognitive Systems and through Ideas Labs*** (see ***Ideas Labs: What are They and Why is NSF Using Them?*** in the February 15, 2014 issue of this newsletter). In addition, NSF is announcing a new opportunity to facilitate partnerships among academia, industry, and government to advance the science and engineering of brain imaging and elucidate the relationship between structure and function. For more information, visit NSF BRAIN." Also see NSF Understanding the BRAIN.

The Fact Sheet notes that many universities have already moved quickly to develop a strategic and coordinated action plan for BRAIN research and funding, including the University of Pittsburg, Carnegie Mellon University, University of Texas, University of Utah, Boston University, and University of California-Berkeley. All of these, listed in the Fact Sheet, have developed ***profiles of strategically aligned research activities to position themselves for future funding***.

The September 29 **Dear Colleague Letter (DCL) - Intent to support an Ideas Lab on multiscale integration of brain activity and structure with brain function using predictive theoretical models and innovative experimental methodology** has elaborated on the above: "As part of the BRAIN Initiative, NSF intends to support an Ideas Lab, an intensive workshop focused on finding innovative solutions to Grand Challenge problems in FY2015. The goal of the

activity is to assemble a diverse group of researchers from multiple disciplines to facilitate the generation and execution of innovative research projects aimed at understanding key aspects of brain function. The broad theme of this activity is anticipated to involve multi-scale integration of the dynamic activity and structure of the brain, with special emphasis on linking the dynamics of brain and neural circuits with brain function, using predictive theoretical frameworks and innovative experimental methodology. ***The Biological Sciences Directorate (BIO) and the Mathematical and Physical Sciences Directorate (MPS) are currently preparing the program solicitation***."

The September 30 **[Dear Colleague Letter (DCL): Submission of I/UCRC Proposals in Response to NSF 13-594 in Areas Related to Understanding the Brain's Structure and Function](#)** further elaborates on this effort by noting that "NSF is committed to understanding the brain, in action and in context, which poses significant theoretical and technological challenges. For example, understanding the function and architecture of the living human brain and replicating it using artificial components and circuitry ***is one of the grand engineering challenges***... This Dear Colleague Letter is intended to foster collaborations between industry and academe in the field of brain imaging and in identifying structure - behavior relationships. NSF welcomes and encourages proposals in response to [NSF 13-594](#) in the areas outlined in this DCL. Brain imaging and the science behind the complex architecture is revealing numerous opportunities and challenges in engineering and sciences. ***Potential areas of pre-competitive research that are of interest include, but are not limited to***:

- Understanding the limitations of and improving the imaging modalities (spatial resolution, temporal resolution, environmental constraints, sensitivity, etc.)
- New instrumentation concepts that are flexible and adaptive to advance the understanding of the full complexity of the brain in context and in action; hybrids of electric, magnetic and optical non-invasive imaging techniques to provide new insight into brain function
- New analytic techniques to link data collected by advanced non-invasive neuroimaging technologies to cognition and behavior
- Multiscale modeling and simulation techniques that can improve our understanding of *in vivo* brain function and its relationship to perceptions, thoughts or behaviors; new computational sensing, modeling, and visualization technologies for better understanding of brain connectivity and activity
- New methods that address structural and functional variability of the brain, and individual differences in cognition
- Bio-inspired technologies that could enable game changing sensors, control systems or imaging modalities; brain - inspired components and systems
- New material systems, magnetoelectric composites, metamaterials, and nanostructures that can launch better performing imaging sensors and neuronal circuit components
- Advanced manufacturing techniques such as aerosol deposition and 4D printing to reproduce multi-dimensional conformal structures
- Advances in the topical areas of energy-scavenging, mm3 computer chips, noise reduction circuits, short range wireless, signal processing and magnetic semiconductors, as relevant to brain imaging and understanding of functionality

- Wearable electronics and communication systems to understand the human brain structure - behavior relationships in dynamic environments."

Finally, NSF's new solicitation of last week entitled **Integrative Strategies for Understanding Neural and Cognitive Systems (NSF-NCS)** gives an excellent insight into the role NSF sees the agency play in the national BRAIN initiative. The solicitation notes that "The complexities of brain and behavior pose fundamental questions in many areas of science and engineering, drawing intense interest across a broad spectrum of disciplinary perspectives while eluding explanation by any one of them. Rapid advances within and across disciplines have led to newly converging theories, models, empirical methods and findings, opening new opportunities to understand complex aspects of the brain in action and in context. Innovative, integrative, boundary-crossing approaches are necessary to push the field forward.

This solicitation describes the first phase of a new NSF program to support transformative and integrative research that will accelerate understanding of neural and cognitive systems. NSF seeks exceptional proposals that are bold, potentially risky, and transcend the perspectives and approaches typical of disciplinary research programs. This multi-directorate program is one element of NSF's broader aim to foster innovation in Cognitive Science and Neuroscience, a multi-year effort that includes NSF's participation in the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative.

For FY 2015, this competition is organized around two research themes: *Neuroengineering and Brain-Inspired Concepts and Designs* and *Individuality and Variation*. Within each theme, general advances in theory and methods, technological innovations, educational approaches, enabling research infrastructure, and workforce development are all of significant interest. Competitive proposals must be consistent with the missions of the participating directorates. Potentially groundbreaking approaches that entail significant risk are encouraged."

Bottom line for research offices and others who will play a role in developing and writing proposals to NSF and other agencies related to the national BRAIN initiative—read the reports, roadmaps, solicitations and other documents referenced by the funding agencies to get a sense of where this research is going, the way various agencies adapt the BRAIN initiative to the specific agency mission research, how agencies will align BRAIN research priorities with other agencies and industry, and what are the characteristics of a research team needed to be successful in brain funding, borrowing a strategy page from those universities noted in the Fact Sheet as strategically positioning themselves in various institutional configurations to be successful in this dramatically evolving domain of BRAIN research and funding.

Research Grant Writing Web Resources
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FAQs for Science and Technology Centers (STC): Integrative Partnerships Program

Interdisciplinary Research Across the SBE Sciences, Including a New Interdisciplinary Behavioral and Social Sciences (IBSS) Competition. Based on feedback gathered during the SBE 2020 visioning process and presented in *Rebuilding the Mosaic*, the Directorate for Social, Behavioral & Economic Sciences (SBE) encourages investigators to submit proposals that go beyond the boundaries of traditional disciplines, span across the existing core SBE programs, or extend outside the SBE sciences. A new Dear Colleague Letter outlines a range of options for pursuing support for interdisciplinary research that bridges the social, behavioral, and economic (SBE) sciences. Among these options is a new competition for Interdisciplinary Behavioral and Social Sciences Research (IBSS). Consult the IBSS website and the IBSS solicitation for more information.

New to the DOE SBIR & STTR Programs?
We strongly encourage all to start by watching the Overview Webinar in the banner above. The overview is about 1 hour and provides an in-depth understanding of the purpose of the programs, the technology areas covered, and the grant application process. To just view the presentation slides, click here (9.7MB).

NSF Grants Conference hosted by Colorado State University - June 23-24, 2014
- **Introduction and NSF Overview**
- **Proposal Preparation**
- **NSF Merit Review Process**
- **Award Management**
- **NSF Policy Update**
- **Crosscutting and Special Interest Programs**
- **International Programs**
- **Office of the Inspector General**
- **Breakout Sessions:**
  - **Biological Sciences**
  - **Post-Award Monitoring and Compliance**
  - **Computer and Information Science and Engineering**
  - **Education and Human Resources**
  - **Engineering**
  - **Faculty Early Career Development (CAREER) Program**
  - **Geosciences**
  - **Mathematical and Physical Sciences**
  - **NSF Award Cash Management Service (ACM$)**
  - **Science, Engineering & Education for Sustainability (SEES)**
  - **Social, Behavioral and Economic Sciences**

- o **Research.gov**

Previous IES Research Funding Opportunities Webinars

Educational Grant Writing Web Resources

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Discipline-Based Education Research: Understanding and Improving Learning in Undergraduate Science and Engineering (2012)

Support for NSF Improving Undergraduate STEM Education (IUSE) Proposal Preparation

Outreach/Education/Diversity " Virtual Brown Bag " webinars

Translating Engineering Research to K-12 Education webinar

The Good, the Bad and the Ugly of Engaging Schools: What Works and What Doesn't webinar

IUSE Webinars
NSF has released a new Program Description NSF 14-588 titled Improving Undergraduate STEM Education (IUSE) that provides a mechanism for submitting proposals for "research-based and research-generating approaches to understanding STEM learning; to designing, testing, and studying curricular change; to wide dissemination and implementation of best practices; and to broadening participation of individuals and institutions in STEM fields." The Division of Undergraduate Education (DUE) is collaborating with the Virtual Faculty Collaborative (VFC), a partnership between AAAS, Louisiana State University, and Higher Education Services, to offer several webinars to discuss the IUSE Program. The recordings of the September 3, 4, NSF IUSE Webinars and the slides are now available at http://www.nsflsu.com/nsf-iuse-webinar-recordings-september-2014.html.

New Quick Review on "Getting Under the Hood: How and For Whom Does Increasing Course Structure Work?"
This study measured the impact of increasing course structure on student achievement in an undergraduate biology course. The authors modified the traditional lecture format of the course by increasing in-class group work to about 35% of class time, assigning weekly graded preparatory homework, and providing guided questions that students could attempt to answer while reading the week's assigned textbook material. The study examined the impact of the intervention on exam scores, exam pass rates, and course pass rates. The study authors reported that there were statistically significant impacts on exam scores and on the proportion of students passing the course, but there were no significant differences between the intervention and comparison conditions on exam pass rates.

Career Choices of Female Engineers: A Summary of a Workshop
Despite decades of government, university, and employer efforts to close the gender gap in engineering, women make up only 11 percent of practicing engineers in the United States. What factors influence women graduates' decisions to enter the engineering workforce and

either to stay in or leave the field as their careers progress? Researchers are both tapping existing data and fielding new surveys to help answer these questions. On April 24, 2013, the National Research Council Committee on Women in Science, Engineering, and Medicine held a workshop to explore emerging research and to discuss career pathways and outcomes for women who have received bachelor's degrees in engineering. Participants included academic researchers and representatives from the Department of Labor, National Science Foundation, and Census Bureau, as well as several engineering professional societies. Career Choices of Female Engineers summarizes the presentations and discussions of the workshop.

Agency Research News

Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0001181: Wind Energy Bat Impact Minimization Technologies and Field Testing Opportunities

The purpose of this Notice is to provide potential applicants advance notice that the Office of Energy Efficiency and Renewable Energy (EERE) intends to issue, on behalf of the Wind and Water Power Technologies Office, a Funding Opportunity Announcement (FOA) entitled "Wind Energy Bat Impact Minimization Technologies and Field Testing Opportunities." To address and minimize the regulatory and financial risks associated with wind power development in locations with sensitive bat species, the Department of Energy's Wind and Water Power Technologies Office (WWPTO) seeks through this FOA to fund projects that advance the technical and commercial readiness of bat impact mitigation and minimization technologies including, but not limited to, bat deterrents and operational changes that have a high likelihood of reducing bat mortality at a facility. This FOA will also support the demonstration and evaluation of near-commercial bat impact mitigation technologies at operational wind facilities. These technologies, once successfully demonstrated, will provide regulators and wind facility owner-operators with viable and cost effective tools to reduce bat mortality at wind facilities and ease the regulatory and financial uncertainty related to the development and long-term operation of wind farms in bat habitat. NO APPLICATIONS WILL BE ACCEPTED THROUGH THIS NOTICE. Please do not submit questions or respond to this Notice of Intent. Prospective applicants to the FOA should begin developing partnerships, formulating ideas, and gathering data in anticipation of the issuance of this FOA. EERE plans to issue the FOA in the first Quarter of Fiscal Year 2015 (by December 31, 2014). For more information, see the full solicitation.

FAQs for Science and Technology Centers (STC): Integrative Partnerships Program

Dear Colleague Letter: Veterans Research Supplement (VRS) Program

The National Science Foundation (NSF) recognizes that veterans represent a potential underutilized workforce for the U.S. science and engineering research and industry communities. Many veterans are transitioning from active military service to civilian careers and exploring education options through the post-9/11 GI Bill. Through this Dear Colleague Letter, NSF is exploring alternate pathways to encourage and support veterans' engagement into STEM fields.

Recommendations from the NSF Engineering Education and Centers (EEC) Division Workshop entitled "Veterans' Education for Engineering and Science" in April 2009 stated: "NSF and other federal science and engineering agencies should create an education/career development program focused on getting veterans into science and technology careers. NSF already has grant programs that fund student's research experiences. The cost to expand and enrich such programs is a small fraction of the cost of the post-9/11 veteran educational benefit. Yet by expanding it, the community could engage a significant number of veterans with the potential to pursue careers in fields of engineering, science and technology." (http://www.nsf.gov/eng/eec/VeteranEducation.pdf)

Subsequent to this report, the NSF Engineering Directorate (ENG) began to explore how its existing programs could be leveraged to embrace veteran participants. For example, the Industrial Innovation and Partnerships Division (IIP) successfully piloted the Research Experiences for Veterans (REV) supplement opportunity with the Industry/University Cooperative Research Centers (I/UCRC) Program in 2011 (NSF 11-054) and 2012 (NSF 12-063). In 2012 IIP and EEC launched the Research Experiences for Veterans and Teachers (REV/T) with the I/UCRCs and Engineering Research Centers (ERCs) via NSF 12-073. In this program veteran teachers and/or veteran/teacher teams were supported to work with the I/UCRC and ERC programs. In addition, the Engineering Directorate endorsed the Engineering Research Experience for Veterans (EREV) for the Grant Opportunities for Academic Liaison with Industry (GOALI) program in 2012 (NSF 12-074). The EREV program targeted undergraduate veteran scholars to work with GOALI grantees. Finally, in 2013 the ENG Directorate introduced the Veterans Research Supplement (VRS) program to expand its scope of engineering programs eligible for veteran supplements (NSF 13-047). Veteran undergraduate and graduate students, veteran K-12 teachers, and veteran community college faculty were eligible to participate.

This Dear Colleague Letter continues the VRS program to engage veterans in engineering research. The ENG IIP and EEC Divisions are now accepting requests from their active grantees for the Veterans Research Supplement. The proposed VRS will afford veteran students, veteran teachers, or veteran community college faculty an opportunity to participate with active IIP and EEC grantees to conduct basic and/or industrially relevant research in order to gain a deeper understanding of engineering. Veterans receiving a VRS will intern with any of the following active awardees or affiliated member companies supported by IIP and EEC (Points of contact are listed for each program.):

- Industry/University Cooperative Research Centers (I/UCRC), (Raffaella Montelli)
- Engineering Research Center (ERC) university leads and partners, (Mary Poats)
- Research Experiences for Teachers in Engineering and Computer Science (RET), (Mary Poats)
- Research Experiences for Undergraduates (REU) sites, (Esther Bolding)
- Engineering Education Research (EER) grantees, (Donna Riley)
- Nanotechnology Undergraduate Education (NUE) in Engineering grantees, (Mary Poats)
- Small Business Innovation Research (SBIR) Phase II grantees, (Ben Schrag)
- Small Business Technology Transfer (STTR) Phase II grantees, (Ben Schrag)
- Partnerships for Innovation - Building Innovation Capacity (BIC) grantees, (Sara Nerlove)
- Partnerships for Innovation - Accelerating Innovation Research (AIR) grantees, (Barbara Kenny)
- Grant Opportunities for Academic Liaison with Industry (GOALI) grantees, (Don Senich)

NSF Multi-Year Initiative, the *Professional Formation of Engineers*

The NSF Engineering (ENG) Directorate is launching a multi-year initiative, the *Professional Formation of Engineers*, to create and support an innovative and inclusive engineering profession for the 21st Century. Professional Formation of Engineers (PFE) refers to the formal and informal processes and value systems by which people become engineers. It also includes the ethical responsibility of practicing engineers to sustain and grow the profession. The

engineering profession must be responsive to national priorities, grand challenges, and dynamic workforce needs; it must be equally open and accessible to all.

In FY 2015 the PFE initiative in ENG is launching a pilot program aligned with the IUSE framework: *Revolutionizing Engineering Departments (herein referred to as RED)*, in partnership with the Directorates for Computer and Information Science and Engineering (CISE) and Education and Human Resources (EHR). This funding opportunity enables engineering departments to lead the nation by successfully achieving significant sustainable changes necessary to overcome long-standing issues in their undergraduate programs and educate inclusive communities of engineering students prepared to solve 21st century challenges. Computer science departments, whether administratively located in or outside an engineering program, are included in RED, as they share the same challenges as traditional engineering departments. (Note: "Engineering departments" in this solicitation will refer to engineering and computer science departments.)

Even as demographic and regional socio-economic factors affect departments in unique ways, there are certain tenets of sustainable change that are common across institutions. For instance, the development and engagement of the entire faculty within a department are paramount to the process, and they must be incentivized. Departmental cultural barriers to inclusion of students *and* faculty from different backgrounds must be identified and addressed. Finally, coherent technical and professional threads must be developed and woven across the four years, especially (1) in the core technical courses of the middle two years, (2) in internship opportunities in the private and public sectors, and (3) in research opportunities with faculty.

These and other threads aim to ensure that students develop deep knowledge in their discipline more effectively and meaningfully, while at the same time, aim to build their capacities for 21st Century and "T-shaped" professional skills, including design, leadership, communication, understanding historical and contemporary social contexts, lifelong learning, creativity, entrepreneurship, and teamwork. It is hoped that, over time, the awardees of this program will create knowledge concerning sustainable change in engineering and computer science education that can be scaled and adopted nationally across a wide variety of academic institutions.

Note: Because it addresses undergraduate engineering education, the Revolutionizing Engineering Departments (RED) funding opportunity is offered in alignment with the NSF-wide undergraduate STEM education initiative, *Improving Undergraduate STEM Education (IUSE)*. More information about IUSE can be found in the Introduction of this solicitation.

Dear Colleague Letter: NSF Graduate Research Fellowship Program (GRFP) - Graduate Research Opportunities Worldwide (GROW)

The purpose of this Dear Colleague Letter is to announce the continuation of GRFP's Graduate Research Opportunities Worldwide (GROW). Through GROW, NSF Graduate Research Fellows are provided an opportunity to engage in international collaborations with investigators in partner countries around the world. Through GROW, NSF Graduate Fellows can benefit from partnerships developed by NSF with funding organizations in other countries. The program is divided into two tracks: GROW and GROW with USAID. The standard GROW track offers research opportunities in the following partner countries: Australia, Austria, Brazil, Chile,

Denmark, Finland, France, India, Ireland, Japan, Korea, the Netherlands, Norway, Singapore, Sweden, and Switzerland. Opportunities with additional partners and countries are announced on the GROW website (http://www.nsf.gov/grow) as they become available.

Through a partnership between NSF and the US Agency for International Development (USAID), the GROW with USAID track provides opportunities to NSF Graduate Fellows to conduct research in developing countries, which includes Brazil, Colombia, India, Indonesia, Philippines, Senegal, and South Africa. GROW with USAID recipients have the opportunity to work with non-government organizations, private sector companies, research centers, universities, and government ministries to conduct research to help solve important development issues in these countries. GROW offers funding for international stays 2-12 months, with the duration varying by country and partner organization. Details for each partner organization, including eligible institutions and organizations, levels of in-country support, and restrictions on the duration of stays, are available through links to their websites available at http://www.nsf.gov/grow.

Dear Colleague Letter: Support for Including Science Educators in Polar Research
The Division of Polar Programs (PLR) and the Division of Undergraduate Education (DUE) encourage proposals that will leverage the extensive National Science Foundation (NSF) investment in polar sciences and polar infrastructure for the benefit of science education in the U.S. and for the development of the next generation of polar scientists. In order to promote polar science educational opportunities, PLR and DUE will accept and review proposals for the development and management of a program(s) that will facilitate the participation of pre-service and in-service middle and high school teachers as well as faculty from Primarily Undergraduate Institutions (PUI), including community colleges and Minority Serving Institutions (MSI), in research projects focused on the Arctic and Antarctic. Proposals in response to this Dear Colleague Letter must be submitted to the Improving Undergraduate Science Education (IUSE) deadline of January 13th, 2015.

The integration of research and education is essential to NSF's mission. In addition, NSF seeks to broaden participation in science and to make the results of research projects widely accessible to students and the public. PLR addresses these objectives by supporting the participation of students and educators in polar research projects. NSF priorities for undergraduate-focused education projects are informed by a new framework developed as part of the National Science Foundation (NSF) *Improving Undergraduate STEM Education* (IUSE) initiative, which is a comprehensive, Foundation-wide effort to accelerate the quality and effectiveness of the education of undergraduates in all of the STEM fields. The *IUSE Framework* promotes new and exciting approaches to using research on STEM learning and education to address challenges across undergraduate STEM education, as well as within specific disciplines. The framework draws upon a knowledge base accumulated from decades of research, development, and best practices across the nation in STEM undergraduate education. NSF expects that investments within the IUSE portfolio will integrate theories and findings from education research with attention to the needs and directions of frontier science and engineering research. Priorities of this framework are described in more detail in the IUSE solicitation (NSF 14-588).

Dear Colleague Letter (DCL) - Intent to support an Ideas Lab on multiscale integration of brain activity and structure with brain function using predictive theoretical models and innovative experimental methodology

The National Science Foundation (NSF) is a partner in President Obama's "Brain Research Accelerated by Innovative Neurotechnologies" ("BRAIN") Initiative. As part of the BRAIN Initiative, NSF intends to support an Ideas Lab, an intensive workshop focused on finding innovative solutions to Grand Challenge problems in FY2015. The goal of the activity is to assemble a diverse group of researchers from multiple disciplines to facilitate the generation and execution of innovative research projects aimed at understanding key aspects of brain function. The broad theme of this activity is anticipated to involve multi-scale integration of the dynamic activity and structure of the brain, with special emphasis on linking the dynamics of brain and neural circuits with brain function, using predictive theoretical frameworks and innovative experimental methodology. The Biological Sciences Directorate (BIO) and the Mathematical and Physical Sciences Directorate (MPS) are currently preparing the program solicitation.

Dear Colleague Letter (DCL): Submission of I/UCRC Proposals in Response to NSF 13-594 in Areas Related to Understanding the Brain's Structure and Function

The National Science Foundation (NSF) Industry/University Cooperative Research Centers (I/UCRC) Program has for over 30 years fostered long-term partnerships among academe, industry, and government in various technology sectors through center-scale activities. These partnerships developed through the cooperative execution of pre-competitive research strengthen the U.S. innovation ecosystem and competitiveness. Pre-competitive research conducted by I/UCRCs addresses industry-inspired fundamental research challenges; industry members benefit from collaboration with academic partners in the definition and execution of the corresponding research. NSF provides catalyzing investment to the centers, which are primarily supported by industrial members and other stakeholders. The research carried out at each center is of interest to both the center faculty and the center's industry members. I/UCRCs contribute to the nation's research infrastructure base and enhance the intellectual capacity of the engineering and science workforce through the integration of research and education. As appropriate, I/UCRCs establish international collaborations to advance these goals within the global context.

Dear Colleague Letter: Closing of Program Solicitation NSF 14-511

The purpose of this letter is to announce that Program Solicitation NSF 14-511, "NSF/DOE Partnership on Advance Frontiers in Renewable Hydrogen Fuel Production Via Solar Water Splitting Technologies 2014-2016" will not be offered for fiscal year 2015 (FY15) or subsequently in fiscal year 2016 (FY16). This solicitation detailed the submission of a Letter of Intent (LOI) by Oct. 6 and full proposal by December 11. Please do not submit a LOI or full proposal to this solicitation. All proposals submitted to this closed solicitation will be returned without review**.**

Agency Reports, Workshops & Research Roadmaps
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Graduate Medical Education That Meets the Nation's Health Needs

Today's physician education system produces trained doctors with strong scientific underpinnings in biological and physical sciences as well as supervised practical experience in delivering care. Significant financial public support underlies the graduate-level training of the nation's physicians. Two federal programs--Medicare and Medicaid--distribute billions each year to support teaching hospitals and other training sites that provide graduate medical education.

Graduate Medical Education That Meets the Nation's Health Needs is an independent review of the goals, governance, and financing of the graduate medical education system. This report focuses on the extent to which the current system supports or creates barriers to producing a physician workforce ready to provide high-quality, patient-centered, and affordable health care and identifies opportunities to maximize the leverage of federal funding toward these goals. *Graduate Medical Education* examines the residency pipeline, geographic distribution of generalist and specialist clinicians, types of training sites, and roles of teaching and academic health centers.

The recommendations of *Graduate Medical Education* will contribute to the production of a better prepared physician workforce, innovative graduate medical education programs, transparency and accountability in programs, and stronger planning and oversight of the use of public funds to support training. Teaching hospitals, funders, policy makers, institutions, and health care organizations will use this report as a resource to assess and improve the graduate medical education system in the United States.

Data and Research to Improve the U.S. Food Availability System and Estimates of Food Loss: A Workshop Report

The United States Department of Agriculture's (USDA's) Economic Research Service's (ERS) Food Availability Data System includes three distinct but related data series on food and nutrient availability for consumption. The data serve as popular proxies for actual consumption at the national level for over 200 commodities (e.g., fresh spinach, beef, and eggs). The core Food Availability (FA) data series provides data on the amount of food available, per capita, for human consumption in the United States with data back to 1909 for many commodities. The Loss-Adjusted Food Availability (LAFA) data series is derived from the FA data series by adjusting for food spoilage, plate waste, and other losses to more closely approximate 4 actual intake. The LAFA data provide daily estimates of the per capita availability amounts adjusted for loss (e.g., in pounds, ounces, grams, and gallons as appropriate), calories, and food pattern equivalents (i.e., "servings") of the five major food groups (fruit, vegetables, grains, meat, and dairy) available for consumption plus the amounts of added sugars and sweeteners and added fats and oils available for consumption. This fiscal year, as part of its initiative to systematically review all of its major data series, ERS decided to review the FADS data system. One of the

goals of this review is to advance the knowledge and understanding of the measurement and technical aspects of the data supporting FADS so the data can be maintained and improved.

Data and Research to Improve the U.S. Food Availability System and Estimates of Food Loss is the summary of a workshop convened by the Committee on National Statistics of the National Research Council and the Food and Nutrition Board of the Institute of Medicine to advance knowledge and understanding of the measurement and technical aspects of the data supporting the LAFA data series so that these data series and subsequent food availability and food loss estimates can be maintained and improved. The workshop considered such issues as the effects of termination of selected Census Bureau and USDA data series on estimates for affected food groups and commodities; the potential for using other data sources, such as scanner data, to improve estimates of food availability; and possible ways to improve the data on food loss at the farm and retail levels and at restaurants. This report considers knowledge gaps, data sources that may be available or could be generated to fill gaps, what can be learned from other countries and international organizations, ways to ensure consistency of treatment of commodities across series, and the most promising opportunities for new data for the various food availability series.

[The Influence of Global Environmental Change on Infectious Disease Dynamics: Workshop Summary](#)

The twentieth century witnessed an era of unprecedented, large-scale, anthropogenic changes to the natural environment. Understanding how environmental factors directly and indirectly affect the emergence and spread of infectious disease has assumed global importance for life on this planet. While the causal links between environmental change and disease emergence are complex, progress in understanding these links, as well as how their impacts may vary across space and time, will require transdisciplinary, transnational, collaborative research. This research may draw upon the expertise, tools, and approaches from a variety of disciplines. Such research may inform improvements in global readiness and capacity for surveillance, detection, and response to emerging microbial threats to plant, animal, and human health.

The Influence of Global Environmental Change on Infectious Disease Dynamics is the summary of a workshop hosted by the Institute of Medicine Forum on Microbial Threats in September 2013 to explore the scientific and policy implications of the impacts of global environmental change on infectious disease emergence, establishment, and spread. This report examines the observed and potential influence of environmental factors, acting both individually and in synergy, on infectious disease dynamics. The report considers a range of approaches to improve global readiness and capacity for surveillance, detection, and response to emerging microbial threats to plant, animal, and human health in the face of ongoing global environmental change.

New Funding Opportunities

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Content Order
New Funding Posted Since September 15 Newsletter
URL Links to New & Open Funding Solicitations
Solicitations Remaining Open from Prior Issues of the Newsletter
Open Solicitations and BAAs

[User Note: URL links are active on date of publication, but if a URL link breaks or changes a Google search on the key words will typically take you to a working link. Also, entering a grant title and/or solicitation number in the Grants.gov search box will typically work as well.]

New Funding Solicitations Posted Since September 15 Newsletter

DE-FOA-0001162 FOA DE-FOA-0001162 Targeted Algal Biofuels and Bioproducts (TABB)
The Office of Energy Efficiency and Renewable Energy (EERE) is issuing, on behalf of the Bioenergy Technologies Office (BETO), a Funding Opportunity Announcement (FOA) DE-FOA-0001162, entitled Targeted Algal Biofuels and Bioproducts (TABB). The TABB FOA seeks alternative pathways to overcome two of the key barriers to commercializing algal biofuels: the high cost of producing algal biomass and the low yield of target biofuel and bioproducts feedstocks produced from algae. Specifically, the TABB FOA will support: 1) the development of algae cultures that produce valuable bioproducts alongside fuels to increase the overall value of the biomass; and 2) the development of crop protection and CO2 utilization technologies to boost culture productivity and yield to reduce the cost of the biomass. The goal is to enable a modeled minimum fuel selling price, assuming mature technologies, of less than $5 gasoline gallon equivalent for algal biofuels through creation of valuable products alongside fuels and achieving increased biomass productivity that leads to higher feedstock yields. The TABB FOA includes two topic areas: 1. Consortia that bring together upstream and downstream expertise to develop biofuels and bioproducts from algae that are comparable and competitive with their petroleum-based counterparts and have broad national market impacts; 2. Single investigator or small team technology development projects focused on developing crop protection or CO2 utilization technologies to raise the biomass productivity and demonstrate that the increase could lead to higher yields. Consortia projects in Topic Area 1 will develop and characterize finished products and fuels spanning the entire algae processing system (cultivation, harvesting, processing, refining/bioproduct production). The projects in Topic Area 2 will increase algal biomass productivity and/or yield via crop protection or CO2 utilization strategies. The eXCHANGE system is currently designed to enforce hard deadlines for Concept Paper and Full Application submissions. The APPLY and SUBMIT buttons automatically disable at the defined submission deadlines. The intention of this design is to consistently enforce a standard deadline for all applicants. Applicants that experience issues with submissions PRIOR to the FOA

Deadline: In the event that an Applicant experiences technical difficulties with a submission, the Applicant should contact the eXCHANGE helpdesk for assistance (exchangehelp@hq.doe.gov). The eXCHANGE helpdesk &/or the EERE eXCHANGE System Administrators (eXCHANGE@go.doe.gov) will assist the Applicant in resolving all issues. Applicants that experience issues with submissions that result in a late submission: In the event that an Applicant experiences technical difficulties with a submission that results in a late submission, the Applicant should contact the eXCHANGE helpdesk for assistance (exchangehelp@hq.doe.gov). The eXCHANGE helpdesk &/or the EERE eXCHANGE System Administrators (eXCHANGE@go.doe.gov) will assist the Applicant in resolving all issues (including finalizing the submission on behalf of and with the Applicant?s concurrence). DOE will only accept late applications when the Applicant has a) encountered technical difficulties beyond their control; b) has contacted the eXCHANGE helpdesk for assistance, and c) has submitted the application through eXCHANGE within 24 hours of the FOA?s posted deadline. **The TABB FOA Informational Webinar will be held on Wednesday, October 8, 2014 from 1:00pm-3:00pm EST**. Standard application questions regarding the EERE Office and FOA procedures will be discussed. Here is the link to the Webinar: https://www1.gotomeeting.com/register/914131609. **Concept Paper due October 30; full application due December 15.**

DE-FOA-0001197: Advanced Research In Dry-Cooling (ARID)

This program seeks to fund transformative new power plant cooling technologies that enable high thermal-to-electric energy conversion efficiency with zero net water dissipation to the atmosphere. Of particular interest to this program are technologies that incorporate air cooling, sorption-based cooling, multimode (convection/radiant) cooling, large capacity cool storage, or any other innovative heat rejection technology that addresses the programmatic goals. Successful technologies emerging from this program will enable continued reliable and efficient domestic electric power production, independent of population growth and climatic variations and with minimal impact on the aquatic environment. Market penetration of these technologies will significantly reduce the risk of lost thermoelectric power production. *This program aims to bridge the gap between fundamental scientific advances, such as those arising from the NSF Thermal Transport Processes Program, ONR Ship Systems and Engineering Research Program (Thermal Energy Management), and the NSF/EPRI Advanced Dry Cooling for Power Plants program, and technology that will have a transformative impact in dry-cooling of power plants*. **Concept Paper Submission Deadline: 11/10/2014 5:00 PM ET; Full Application Submission Deadline: TBD.**

DE-FOA-0001211: Transportation Energy Resources From Renewable Agriculture (TERRA)

There is an urgent need to accelerate energy crop development for the production of renewable transportation fuels from biomass (see Announcement of Teaming Partner List for Upcoming Funding Opportunity Announcement: Transportation Energy Resources from Renewable Agriculture (TERRA)). Recent technological advancements have now made it possible to extract massive volumes of genetic, physiological, and environmental data from certain crops, but, even with these resources, the data still cannot be processed into the

knowledge needed to predict crop performance in the field. The overall objective of the TERRA program is to develop tools that enable an increase in the rate and extent of genetic improvement of the yield of bioenergy crops grown in the field. If successful, the program will enhance land use efficiency, reduce competition between bioenergy and food crops, improve environmental sustainability, and provide a more stable supply of biomass for transportation fuels and bio-refineries. ARPA-E seeks multidisciplinary teams to leverage advancements in automation, sensor technologies, computational analytics and low-cost nucleotide sequencing and develop innovative phenotyping systems that enable (a) new predictive algorithms for plant growth, (b) more detailed measurements for plant physiology, and (c) more sophisticated bioinformatics pipelines for gene discovery and trait association. TERRA will enable breeders to evaluate more individual plants, to select appropriate plants for breeding earlier in the growing season, to capture better information about them during their development, and to associate this information with the best genes to propagate. **Concept Paper Submission Deadline: 11/17/2014 5:00 PM ET; Full Application Submission Deadline: TBD.**

[NOAA-NMFS-HCPO-2015-2004213 FY2015 Community-based Marine Debris Removal](#)
The NOAA Marine Debris Program, authorized in the Marine Debris Research, Prevention, and Reduction Act (33 U.S.C. 1951 et seq.) as amended by the Marine Debris Act Amendments of 2012 (P.L. 112-213, Title VI, Sec. 603, 126 Stat. 1576, December 20, 2012), provides funding to catalyze the implementation of locally-driven, community-based marine debris prevention, assessment, and removal projects that will benefit coastal habitat, waterways, and NOAA trust resources. Funding for this purpose comes through the NOAA Marine Debris Program as appropriations to the Office of Response and Restoration, National Ocean Service Projects awarded through this grant competition have strong on-the-ground habitat restoration components involving the removal of marine debris, including derelict fishing gear. Projects also provide benefits to coastal communities, and create long-term ecological habitat improvements for NOAA trust resources. Through this solicitation NOAA identifies marine debris removal projects, strengthens the development and implementation of habitat restoration through community-based marine debris removal, and fosters awareness of the effects of marine debris to further the conservation of living marine resource habitats, as well as contribute to the understanding of debris types and impacts. Successful proposals through this solicitation will be funded through cooperative agreements. Funding of up to $2,000,000 is expected to be available for Community-based Marine Debris Removal Project Grants in FY2015. Typical awards will range from $50,000 to $150,000. **Due November 17.**

[PA-AFOSR-2014-0001 Defense University Research Instrumentation Program (DURIP) FY 2015](#)
The Department of Defense (DoD) announces the Fiscal Year 2015 Defense University Research Instrumentation Program (DURIP), a part of the University Research Initiative (URI). DURIP is designed to improve the capabilities of U.S. institutions of higher education to conduct research and to educate scientists and engineers in areas important to national defense, by providing funds for the acquisition of research equipment.
The research areas of interest to the administering agencies are available for reference on-line at the following addresses:

Army Research Office:

http://www.aro.army.mil/ (select "Business" and then "Broad Agency Announcements")
See the most recent ARO Core Broad Agency Announcement for Basic and Applied Scientific Research.

Office of Naval Research:

http://www.onr.navy.mil/ (select "Contracts and Grants" and then "Broad Agency Announcements") See Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology, BAA ONRBAA14-001. After 30 Sep 2014, please use the FY15 Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology, BAA ONRBAA15-001.

Air Force Office of Scientific Research:

See BAA AFOSR-2014-0001 Research Interests of the Air Force Office of Scientific Research available at http://www.grants.gov/web/grants/search-grants.html?keywords=BAA-AFOSR-2014-0001 .
Due November 17.

DARPA-BAA-14-64 Cyber Fault-tolerant Attack Recovery (CFAR)

The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals in the area of heterogeneous, cyber fault-tolerant computation to enable rapid detection of and recovery from cyber-attacks. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice. For further details see attached PDF DARPA-BAA-14-64(CFAR). **Due November 19.**

ONRFOA14-012 Fiscal Year (FY) 2015 Department of Defense Multidisciplinary Research Program of the University Research Initiative

The DoD Multidisciplinary University Research Initiative (MURI), one element of the University Research Initiative (URI), is sponsored by the DoD research offices: the Office of Naval Research (ONR), the Army Research Office (ARO), and the Air Force Office of Scientific Research (AFOSR) (hereafter collectively referred to as "DoD agencies").The MURI program supports basic research in science and engineering at U.S. institutions of higher education (hereafter referred to as "universities") that is of potential interest to DoD. The program is focused on multidisciplinary research efforts where more than one traditional discipline interacts to provide rapid advances in scientific areas of interest to 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."
White papers due November 27; Full proposal due February 23.

Partnerships for Innovation: Building Innovation Capacity

The Partnerships for Innovation: Building Innovation Capacity (PFI:BIC) program supports academe-industry partnerships, which are led by an interdisciplinary academic research team with a least one industry partner to build technological, human, and service system innovation capacity. These partnerships focus on the integration of technologies into a specified human-centered smart service system with the potential to achieve transformational change in an existing service system or to spur an entirely new service system. These technologies have been inspired by existing breakthrough discoveries. **WEBINARS: Webinars will be held to answer questions about the solicitation. Register on the PFI:BIC website where details will be posted (http://www.nsf.gov/eng/iip/pfi/bic.jsp).** Potential proposers and their partners are encouraged to attend. Also, Vice Presidents for Research and academic personnel concerned with the review of their respective institution's selection of candidates for submission, individuals from Sponsored Research Offices, and those focused on the identification and understanding of limited application submissions are encouraged to attend. Service systems are socio-technical configurations of people, technologies, organizations, and information designed to deliver services that create and deliver value [1]. A "smart" service system is a system capable of learning, dynamic adaptation, and decision making based upon data received, transmitted, and/or processed to improve its response to a future situation. The system does so through self-detection, self-diagnosing, self-correcting, self-monitoring, self-organizing, self-replicating, or self-controlled functions. These capabilities are the result of the incorporation of technologies for sensing, actuation, coordination, communication, control, etc. The system may exhibit a sequence of features such as detection, classification, and localization that lead to an outcome occurring within a reasonable time. **LOI due December 3; full due January 28.**

NEH Collaborative Research Grants

Collaborative Research Grants support interpretive humanities research undertaken by a team of two or more scholars, for full-time or part-time activities for periods of one to three years. Support is available for various combinations of scholars, consultants, and research assistants; project-related travel; field work; applications of information technology; and technical support and services. All grantees are expected to communicate the results of their work to the appropriate scholarly and public audiences. **Due December 9.**

Integrative Strategies for Understanding Neural and Cognitive Systems (NSF-NCS)

The complexities of brain and behavior pose fundamental questions in many areas of science and engineering, drawing intense interest across a broad spectrum of disciplinary perspectives while eluding explanation by any one of them. Rapid advances within and across disciplines have led to newly converging theories, models, empirical methods and findings, opening new opportunities to understand complex aspects of the brain in action and in context. Innovative, integrative, boundary-crossing approaches are necessary to push the field forward.
This solicitation describes the first phase of a new NSF program to support transformative and integrative research that will accelerate understanding of neural and cognitive systems. NSF seeks exceptional proposals that are bold, potentially risky, and transcend the perspectives and

approaches typical of disciplinary research programs. This multi-directorate program is one element of NSF's broader aim to foster innovation in Cognitive Science and Neuroscience, a multi-year effort that includes NSF's participation in the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative (http://www.nsf.gov/brain/).

For FY 2015, this competition is organized around two research themes: **Neuroengineering and Brain-Inspired Concepts and Designs** and **Individuality and Variation**. Within each theme, general advances in theory and methods, technological innovations, educational approaches, enabling research infrastructure, and workforce development are all of significant interest. Competitive proposals must be consistent with the missions of the participating directorates. Potentially groundbreaking approaches that entail significant risk are encouraged.

Two classes of proposals will be considered in FY 2015. **INTEGRATIVE FOUNDATIONS** awards will support projects that develop foundational advances that are deeply connected to a broad scope of important research questions in cognitive and neural systems, and have significant potential for transformative advances in one or more of the FY 2015 thematic areas. **CORE+ EXTENSIONS** will provide additional support to projects selected for funding by other programs in the participating offices and directorates, to enable additional activities that will connect those projects to significant new integrative opportunities in cognitive and neural systems. **LOI December 10; full January 26.**

Partnerships for Innovation: Accelerating Innovation Research- Research Alliance (PFI:AIR-RA)

The NSF Partnerships for Innovation (PFI) program within the Division of Industrial Innovation and Partnerships (IIP) is an umbrella for two complementary subprograms, Accelerating Innovation Research (AIR) and Building Innovation Capacity (BIC). Both programs are concerned with the movement of academic research discoveries into the marketplace, although each focuses on different stages along the innovation spectrum. The PFI:AIR program has two additional subprograms: the PFI:AIR-Technology Translation (See NSF 14-569,) and PFI:AIR-Research Alliance (this solicitation). This PFI:AIR-Research Alliance (RA) solicitation is intended to accelerate the translation and transfer of existing research discoveries into competitive technologies and commercial realities by leveraging the investments NSF has made in research consortia (e.g., Engineering Research Centers, Industry University Cooperative Research Centers, Science and Technology Centers, Nanoscale Science and Engineering Centers, Materials Research Science and Engineering Centers, Centers for Chemical Innovation, and others) and catalyzing academic-based innovation ecosystems. The goal is that these synergistic partnerships and collaborations between government, academia, and other public and private entities will result in new wealth and the building of strong local and regional economies. **WEBINAR: A webinar will be held within 6 weeks of the release date (Sept. 29) of this solicitation to answer any questions about this solicitation. Details will be posted on the PFI:AIR-RA website** (http://www.nsf.gov/eng/iip/pfi/air-ra.jsp) **as they become available**. **LOI January 12; full February 18.**

20150115-PJ National Digital Newspaper Program National Endowment for the Humanities

NEH is soliciting proposals from institutions to participate in the National Digital Newspaper Program (NDNP). NDNP is creating a national digital resource of historically significant

newspapers published between 1836 and 1922, from all the states and U.S. territories. This searchable database will be permanently maintained at the Library of Congress (LC) and will be freely accessible via the Internet. (See the website, [Chronicling America: Historic American Newspapers](#).) An accompanying national newspaper directory of bibliographic and holdings information on the website directs users to newspaper titles available in all types of formats. During the course of its partnership with NEH, LC will also digitize and contribute to the NDNP database a significant number of newspaper pages drawn from its own collections. NEH intends to support projects in all states and U.S. territories, provided that sufficient funds allocated for this purpose are available. One organization within each U.S. state or territory will receive an award to collaborate with relevant state partners in this effort. Previously funded projects will be eligible to receive supplements for continued work, but the program will give priority to new projects. In particular, the program will give priority to projects from states and territories that have not received NDNP funding. Applications that involve collaboration between previously funded and new projects are welcome. Such collaborations might involve, for example, arranging with current awardees to manage the creation and delivery of digital files; offering regular and ongoing consultation on managing aspects of the project; or providing formal training for project staff at an onsite institute or workshop. Over a period of two years, successful applicants will select newspapers published in their state or territory between 1836 and 1922s and convert approximately 100,000 pages into digital files (primarily from microfilm), according to the technical guidelines (PDF) outlined by the Library of Congress. Applicants may select titles published in Danish, English, French, German, Hungarian, Italian, Norwegian, Portuguese, Spanish, and Swedish. (More languages will be added in future years.) **Due January 15.**

[DE-FOA-0001207 Systems Biology Research to Advance Sustainable Bioenergy Crop Development Department of Energy - Office of Science](#)
The Office of Biological and Environmental Research (BER) of the Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving applications for research that supports the Genomic Science research program (http://genomicscience.energy.gov). In this FOA, applications are requested for: i) Systems-level research to better understand the molecular and physiological mechanisms that control bioenergy crop vigor, resource use efficiency, and resilience/adaptability to abiotic stress, as well as interactions with the surrounding environment, in order to increase biomass productivity under changing and at times suboptimal conditions; ii) Systems biology-enabled investigations into the role(s) of microbial and microbial communities in the complex and multi-scaled interactions of the plant-soil-environment: contribution(s) to bioenergy feedstock plant performance, adaptation, and resilience in the face of a broad range of changing environmental conditions and abiotic stressors (e.g., climate), and the impacts of introducing bioenergy cropping systems on the local ecosystem. **Preapplication required Nov. 28**; **Due January 16.**

[Long Term Research in Environmental Biology (LTREB)](#)
The Long Term Research in Environmental Biology (LTREB) Program supports the generation of extended time series of data to address important questions in evolutionary biology, ecology,

and ecosystem science. Research areas include, but are not limited to, the effects of natural selection or other evolutionary processes on populations, communities, or ecosystems; the effects of interspecific interactions that vary over time and space; population or community dynamics for organisms that have extended life spans and long turnover times; feedbacks between ecological and evolutionary processes; pools of materials such as nutrients in soils that turn over at intermediate to longer time scales; and external forcing functions such as climatic cycles that operate over long return intervals. **Preliminary proposal due January 23; full August 3.**

[ONRBAA14-013 Minerva Research Initiative Department of Defense](#)
The Office of Naval Research (ONR) is interested in receiving proposals for the Office of the Secretary of Defense (OSD)-led Minerva Research Initiative (http://minerva.dtic.mil), a DoD-sponsored, university-based social science research program initiated by the Secretary of Defense. This program is a multi-service effort. Ultimately, however, funding decisions will be made by OSD personnel, with technical inputs from the Services. The program focuses on areas of strategic importance to U.S. national security policy. It seeks to increase the Department's intellectual capital in the social sciences and improve its ability to address future challenges and build bridges between the Department and the social science community. Minerva brings together universities, research institutions, and individual scholars and supports multidisciplinary and cross-institutional projects addressing specific topic areas determined by the Department of Defense. The Minerva Research Initiative aims to promote research in specific areas of social science and to promote a candid and constructive relationship between DoD and the social science academic community. The Minerva Research Initiative competition is for research related to the four (4) topics and ten (10) subtopics listed below. Detailed descriptions of the topics can be found in Section VIII, "Specific Minerva Research Initiative Topics." The detailed descriptions are intended to provide the proposer a frame of reference and are not meant to be restrictive. Innovative proposals related to these research topics are highly encouraged. White papers and full proposals are solicited which address the following topics (described in Section VIII of this solicitation): (1) Identity, Influence, and Mobilization (1-A) Culture, identity, and security (1-B) Belief formation and influence (1-C) Mobilization for change (2) Contributors to Societal Resilience and Change (2-A) Governance and rule of law (2-B) Resources, economics, and globalization (2-C) Additional factors impacting societal resilience and change (3) Power and Deterrence (3-A) Power projection and diffusion (3-B) Beyond conventional deterrence (4) Innovations in National Security, Conflict, and Cooperation (4-A) Analytical methods and metrics for security research (4-B) Emerging topics in conflict and security Proposals will be considered both for single-investigator awards as well as larger teams. A team of university investigators may be warranted because the necessary expertise in addressing the multiple facets of the topics may reside in different universities, or in different departments of the same university. The research questions addressed should extend across a fairly broad range of linked issues where there is clear potential synergy among the contributions of the distinct disciplines represented on the team. Team proposals must name one Principal Investigator as the responsible technical point of contact. Similarly, one institution will be the primary recipient for the purpose of award execution. The relationship among

participating institutions and their respective roles, as well as the apportionment of funds including sub-awards, if any, must be described in both the proposal text and the budget. FULL ANNOUNCEMENT is available on the Grants.gov website by scrolling to the top of the synopsis page and clicking on the "FULL ANNOUNCEMENT" box. **Due January 30.**

DARPA-BAA-14-48 Strategic Technologies

DARPA is seeking innovative ideas and disruptive technologies that offer the potential for significant capability improvement across the Strategic Technology Office focus areas. This includes technology development related to Battle Management, Command and Control (BMC2), Communications and Networks, Electronic Warfare, Intelligence, Surveillance, and Reconnaissance (ISR), Position, Navigation, and Timing (PNT), Maritime, and Foundational Strategic Technologies and Systems. **BAA Closing Date: September 17, 2015**

ONRBAA15-001 Long Range BAA for Navy and Marine Corps Science and Technology

The Office of Naval Research (ONR) is interested in receiving proposals for Long-Range Science and Technology (S&T) Projects which offer potential for advancement and improvement of Navy and Marine Corps operations. Readers should note that this is an announcement to declare ONR's broad role in competitive funding of meritorious research across a spectrum of science and engineering disciplines. A brief description of the ONR Program Codes and the science and technology thrusts that ONR is pursuing is provided below. Additional information can be found at the ONR website at http://www.onr.navy.mil/Science-Technology/Departments.aspx . Potential Offerors are urged to check the program areas that they are interested in throughout the year for updates to thrust areas and research priorities on the ONR website at http://www.onr.navy.mil. Prior to preparing proposals, potential offerors are strongly encouraged to contact the ONR point of contact (POC). To identify the POC, follow the link for the appropriate code or division listed below and then click on the link to the thrust or topic area. Each thrust or topic area will provide a POC or e-mail address. **BAA Closing Date: September 30, 2015**

DE-FOA-0001204 FY 2015 Continuation of Solicitation for the Office of Science

The Office of Science of the Department of Energy hereby announces its continuing interest in receiving grant applications for support of work in the following program areas: Advanced Scientific Computing Research, Basic Energy Sciences, Biological and Environmental Research, Fusion Energy Sciences, High Energy Physics, and Nuclear Physics. On September 3, 1992, DOE published in the Federal Register the Office of Energy Research Financial Assistance Program (now called the Office of Science Financial Assistance Program), 10 CFR 605, as a Final Rule, which contained a solicitation for this program. Information about submission of applications, eligibility, limitations, evaluation and selection processes and other policies and procedures are specified in 10 CFR 605. This Funding Opportunity Announcement (FOA), DE-FOA-0001204, is our annual, broad, open solicitation that covers all of the research areas in the Office of Science and is open throughout the Fiscal Year. This FOA will remain open until September 30, 2015, 11:59 PM Eastern Time, or until it is succeeded by another issuance, whichever occurs first. This

annual FOA DE-FOA-0001204 succeeds FOA DE-FOA-0000995, which was published October 1, 2013. **Open to September 30, 2015.**

URL Links to New & Open Funding Solicitations
Links verified: Saturday, October 04, 2014

- **HHS Grants Forecast**
- **American Cancer Society Index of Grants**
- **SAMHSA FY 2014 Grant Announcements and Awards**
- **DARPA Microsystems Technology Office Solicitations**
- **Open Solicitations from IARPA (Intelligence Advanced Research Projects Activity)**
- **Bureau of Educational and Cultural Affairs, Open Solicitations, DOS**
- **ARPA-E Funding Opportunity Exchange**
- **DOE Funding Opportunity Exchange**
- **NIAID Funding Opportunities List**
- **NPS Broad Agency Announcements (BAAs)**
- **NIJ Current Funding Opportunities**
- **NIJ Forthcoming Funding Opportunities**
- **Engineering Information Foundation Grant Program**
- **Comprehensive List of Collaborative Funding Mechanisms**, NORDP
- **ARL Funding Opportunities — Open Broad Agency Announcements (BAA)**
- **HHS Grants Forecast**
- **American Psychological Association, Scholarships, Grants and Awards**
- **EPA 2014 Science To Achieve Results (STAR) Research Grants**
- **NASA Open Solicitations**
- **Defense Sciences Office Solicitations**
- **The Mathematics Education Trust**
- **EPA Open Funding Opportunities**
- **CDMRP FY 2014 Funding Announcements**
- **Office of Minority Health**
- **Department of Justice Open Solicitations**
- **DOE/EERE Funding Opportunity Exchange**
- **New Funding Opportunities at NIEHS (NIH)**
- **National Human Genome Research Institute Funding Opportunities**
- **Army Research Laboratory Open Broad Agency Announcements (BAA)**
- **SBIR Gateway to Funding**
- **Water Research Funding**
- **Fellowship and Grant Opportunities for Faculty Humanities and Social Sciences**
- **DARPA Current Solicitations**
- **Office of Naval Research Currently Active BAAs**
- **HRSA Health Professions Open Opportunities**

- [NIH Funding Opportunities Relevant to NIAID](#)
- [National Institute of Justice Current Funding Opportunities](#)
- [Funding Opportunities by the Department of Education Discretionary Grant Programs](#)
- [EPA's Office of Air and Radiation (OAR) Open Solicitations](#)
- [NETL Open Solicitations](#)
- [DoED List of Currently Open Grant Competitions](#)
- [Foundation Center RFP Weekly Funding Bulletin](#)

Solicitations Remaining Open from Prior Issues of the Newsletter

[Improving Undergraduate STEM Education (IUSE: EHR)](#)

A well-prepared, innovative science, technology, engineering and mathematics (STEM) workforce is crucial to the Nation's health and economy. Indeed, recent policy actions and reports have drawn attention to the opportunities and challenges inherent in increasing the number of highly qualified STEM graduates, including STEM teachers. Priorities include educating students to be leaders and innovators in emerging and rapidly changing STEM fields as well as educating a scientifically literate populace. Both of these priorities depend on the nature and quality of the undergraduate education experience. In addressing these STEM challenges and priorities, the National Science Foundation invests in evidence-based and evidence-generating approaches to understanding STEM learning; to designing, testing, and studying instruction and curricular change; to wide dissemination and implementation of best practices; and to broadening participation of individuals and institutions in STEM fields. The goals of these investments include: increasing the number and diversity of STEM students, preparing students well to participate in science for tomorrow, and improving students' STEM learning outcomes.

The Improving Undergraduate STEM Education (IUSE) program invites proposals that address immediate challenges and opportunities that are facing undergraduate STEM education, as well as those that anticipate new structures (e.g. organizational changes, new methods for certification or credentialing, course re-conception, cyberlearning, etc.) and new functions of the undergraduate learning and teaching enterprise. The IUSE program recognizes and respects the variety of discipline-specific challenges and opportunities facing STEM faculty as they strive to incorporate results from educational research into classroom practice and work with education research colleagues and social science learning scholars to advance our understanding of effective teaching and learning.

Toward these ends the program features two tracks: (1) Engaged Student Learning and (2) Institutional and Community Transformation. Two tiers of projects exist within each track: (i) Exploration and (ii) Design and Development. These tracks will entertain research studies in all areas. In addition, IUSE also offers support for a variety of focused innovative projects that seek to identify future opportunities and challenges facing the undergraduate STEM education enterprise. **Due dates depend on track: October 22, October 24, and January 13.**

[NOAA-NMFS-SE-2015-2004209](#) Fiscal Year 2015 NOAA Gulf of Mexico Bay-Watershed Education and Training (B-WET) Program

The National Marine Fisheries Service Southeast Region (Fisheries Southeast Regional Office) is seeking proposals under the Gulf of Mexico B-WET Program. The Gulf of Mexico B-WET program is an environmental education program that promotes locally relevant, experiential learning in the K-12 environment. Funded projects provide Meaningful Watershed Educational Experiences (MWEEs) for students, related professional development for teachers, and help to support regional education and environmental priorities in the Gulf of Mexico. This program addresses NOAA's Long-Term Goal of "Healthy Oceans: Marine fisheries, habitats, and biodiversity are sustained within healthy and productive ecosystems" and "NOAA's Engagement Enterprise Objective for An engaged and educated public with an improved capacity to make scientifically informed environmental decisions". **Due October 24.**

DE-FOA-0001059 Resilience for Extreme Scale Supercomputing Systems
The Office of Advanced Scientific Computing Research (ASCR) in the Office of Science (SC), U.S. Department of Energy (DOE), hereby invites proposals for basic research that significantly improves the resiliency of scientific applications in the context of emerging architectures for extreme scale computing platforms. The next-generation of scientific discovery will be enabled by research developments that can effectively harness significant or disruptive advances in computing technology. Applications running on extreme scale computing systems will generate results with orders of magnitude higher resolution and fidelity, achieving a time-to-solution significantly shorter than possible with today's high performance computing platforms. However, indications are that these new systems will experience hard and soft errors with increasing frequency, necessitating research to develop new approaches to resilience that enable applications to run efficiently to completion in a timely manner and achieve correct results. Of interest are proposals that address challenges in the following topics: 1. Fault Detection and Categorization 2. Fault Mitigation 3. Anomaly Detection and Fault Avoidance More specific information is included under SUPPLEMENTARY INFORMATION in the full funding opportunity announcement document DE-FOA-0001059. The full text of the FOA is located on FedConnect. Instructions for completing the Grant Application Package are contained in the full text of the FOA which can be obtained at: https://www.fedconnect.net/FedConnect/?doc=DE-FOA-0001059&agency=DOE . A companion Program Announcement to DOE Laboratories (LAB 14-1059) will be posted on the SC Grants and Contracts web site at: http://science.energy.gov/grants/ **Due November 3.**

AID-OAA-SOL-14-000170 Support to Agriculture Research and Development
Feed the Future is the United States Government's global hunger and food security initiative. It supports country‐driven approaches to address the root causes of hunger and poverty and forge long‐term solutions to chronic food insecurity and under‐nutrition. Drawing upon resources and expertise of agencies across the U.S. Government, this Presidential Initiative is helping countries transform their own agriculture sectors to grow enough food sustainably to feed their people. To support this effort the U.S. Agency for International Development is requesting applications from qualified organizations to implement the Support to Agricultural Research and Development Program, as described fully inSection I below. At the end of this agreement, USAID expects the implementer to achieve the following results: 1) The

availability and implementation of improved agricultural production technologies and systems is increased 4) Agricultural technologies and nutrition information extension systems are strengthened. **Due November 3**.

PAR-14-242 Role of the Microflora in the Etiology of Gastro-Intestinal Cancer (R01)
This Funding Opportunity Announcement (FOA) encourages innovative multidisciplinary research projects that will advance our mechanistic understanding of microflora influences on Gastro-Intestinal (GI) carcinogenesis. Recent advances in our knowledge of GI microflora composition and function have generated a flood of new information, technologies, and capabilities that may for the first time allow mechanistic investigations of very complex, networked host/microbiome interactions on a systems wide scale. This FOA encourages investigators to ingrate this new information into hypothesis-driven studies that can define and validate molecular mechanisms that determine microbe-induced carcinogenic outcomes. Applicants may integrate information from existing large data sets, including metagenomic data sets, or may also propose to generate appropriate new data sets, including but not limited to analysis of host and microbial genomes, proteomes, metabalomes, post-translational modifications, secreted signals, and protein-protein interaction data. An additional goal of this program is to encourage collaborative efforts between scientists currently engaged in GI cancer research with those in scientific disciplines that may not otherwise apply their expertise to study cancer etiology and prevention. **Investigators particularly from the disciplines of microbiology, microbial ecology, molecular biology, immunology, nutrition sciences, bioinformatics, and computational sciences are encouraged to apply.** A value added from stimulating integrated, multidisciplinary experimental approaches may include the discovery of emergent properties of the GI ecosystem that could not be elucidated using either descriptive bioinformatics or molecular studies alone. **Due November 4.**

NSF Natural Hazards Engineering Research Infrastructure (2015 - 2019) (NHERI)
This solicitation replaces NSF 13-537, George E. Brown, Jr. Network for Earthquake Engineering Simulation Operations FY 2015-FY 2019 (NEES2 Ops) to establish the Natural Hazards Engineering Research Infrastructure (NHERI) for 2015 - 2019 through support for a network coordination office, experimental facilities, cyberinfrastructure, and computational modeling and simulation tools for earthquake engineering and wind engineering research. This solicitation will support up to ten separate awards to establish NHERI. This solicitation will establish operations of the Natural Hazards Engineering Research Infrastructure (NHERI) for 2015 - 2019. NHERI is the next generation of National Science Foundation (NSF) support for a natural hazards engineering research large facility, replacing the George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES). NEES was established by NSF as a distributed, multi-user, national research infrastructure for earthquake engineering through a facility construction phase during 2000 - 2004, followed by operations of this infrastructure to support research, innovation, and education activities from October 2004 through September 2014. During 2015 - 2019, NHERI will be a distributed, multi-user, national facility to provide the natural hazards engineering community with access to research infrastructure (earthquake and wind engineering experimental facilities, cyberinfrastructure, computational modeling and

simulation tools, and research data), coupled with education and community outreach activities. NHERI will enable research and educational advances that can contribute knowledge and innovation for the nation's civil infrastructure and communities to prevent natural hazard events from becoming societal disasters. NHERI will consist of the following components, established through up to ten individual awards:

•Network Coordination Office (one award),

•Cyberinfrastructure (one award),

•Computational Modeling and Simulation Center (one award), and

•Experimental Facilities for earthquake engineering and wind engineering research (up to seven awards, including one award for a Post-Disaster, Rapid Response Research Facility).

LOI due November 6; full due December 3.

DE-FOA-0001174 Atmospheric System Research Program DOE - Office of Science

The Atmospheric System Research Program (ASR) in the Climate and Environmental Sciences Division (CESD), Office of Biological and Environmental Research (BER) of the Office of Science (SC), U.S. Department of Energy (DOE), supports research on key cloud, aerosol, precipitation, and radiative transfer processes that has the potential to improve the accuracy of regional and global climate models. The ASR program hereby announces its interest in research grant applications for observational, data analysis, and/or modeling studies that use data from CESD, including Atmospheric Radiation Measurement (ARM) and ASR programs, to improve understanding and model representation of cloud microphysical, convective, aerosol, and radiative transfer processes. **Due November 7.**

DoD PH/TBI Psychological Health Research Award

The FY14 Psychological Health and Traumatic Brain Injury (PH/TBI) Psychological Health Research Award (PHRA) is intended to support both applied (preclinical) research and clinical trials within specific Topic Areas addressing the prevention and treatment of military-relevant psychological health issues. Applications proposing research outside of the Topic Areas listed in the Program Announcement should not be submitted in response to this Program Announcement. **Due November 13.**

Dynamics of Coupled Natural and Human Systems (CNH)

The Dynamics of Coupled Natural and Human Systems (CNH) Program supports interdisciplinary research that examines human and natural system processes and the complex interactions among human and natural systems at diverse scales. Research projects to be supported by CNH must include analyses of four different components: (1) the dynamics of a natural system; (2) the dynamics of a human system; (3) the processes through which the natural system affects the human system; and (4) the processes through which the human system affects the natural system. CNH also supports research coordination networks (CNH-RCNs) designed to facilitate activities that promote future research by broad research communities that will include all four components necessary for CNH funding. **Due November 18.**

NOAA-NOS-NCCOS-2015-2004197 2015 **Northern Gulf of Mexico Ecosystems and Hypoxia Assessment Program (NGOMEX); Glider Application to Gulf of Mexico Hypoxic Zone Monitoring: Pilot Study and Transition to Operations**
The purpose of this document is to advise the public that NOAA/NOS/NCCOS/CSCOR is soliciting research applications under the Northern Gulf of Mexico Ecosystems and Hypoxia Assessment Program (NGOMEX) for projects expected to last 2 years in duration. Research applications will propose pilot studies to test application of gliders to measure dissolved oxygen in the large hypoxic zone ("dead zone") along the northern Gulf of Mexico continental shelf and, within 2 years, complete a comprehensive plan to transition to operations the deployment of gliders for hypoxic zone monitoring east and west of the Mississippi delta, to complement shipboard and fixed (mooring/platform) observing system monitoring. Funding is contingent upon the availability of Fiscal Year 2015 Federal appropriations. It is anticipated that projects funded under this announcement will have a September 1, 2015 start date. Total funding for this research: approximately $125,000 per year for awards expected to last 2 years. One to two proposals are expected to be funded at the level of approximately $50,000 - $125,000 per year per proposal. Electronic Access: The following web site furnishes supplementary information: Center for Sponsored Coastal Ocean Research – Ecosystem Stressors Research and Hypoxia and Nutrient Pollution Programs: http://coastalscience.noaa.gov/about/centers/cscor Applications should be submitted through Grants.gov, http://www.grants.gov . **Due November 18.**

NOAA-NOS-NCCOS-2015-2004198 2015 Ecological Effects of Sea Level Rise Program Department of Commerce
The purpose of this document is to advise the public that NOAA/NOS/NCCOS/CSCOR is soliciting proposals under the Ecological Effects of Sea Level Rise (EESLR) Program to improve the management of regional and local ecosystem effects of sea level rise and coastal inundation through targeted research on key technologies, natural and nature-based infrastructure, physical and biological processes, and model evaluation. The overall goal of EESLR is to integrate dynamic physical and biological processes with sea level rise and coastal inundation to improve the prediction of coastal ecosystem effects to enable enhanced coastal resiliency. This information will be used to advance the capacity and capabilities of the NOAA Sentinel Site Program. Funding is contingent upon the availability of Fiscal Year 2015 Federal appropriations. Approximately 2 to 5 projects, 2-3 years in duration, are expected to be funded at the level of $150,000 to $200,000 per year per proposal. Electronic Access: Background information about NOAA's Ecological Effects of Sea Level Rise Program can be found at http://coastalscience.noaa.gov/about/centers/cscor , and the NOAA Sentinel Site Program at http://oceanservice.noaa.gov/sentinelsites/. Proposals should be submitted through Grants.gov, http://www.grants.gov . **Due November 18.**

Ecology and Evolution of Infectious Diseases (EEID)
The Ecology and Evolution of Infectious Diseases program supports research on the ecological, evolutionary, and socio-ecological principles and processes that influence the transmission dynamics of infectious diseases. The central theme of submitted projects must be quantitative or computational understanding of pathogen transmission dynamics. The intent is discovery of

principles of infectious disease transmission and testing mathematical or computational models that elucidate infectious disease systems. Projects should be broad, interdisciplinary efforts that go beyond the scope of typical studies. They should focus on the determinants and interactions of transmission among humans, non-human animals, and/or plants. This includes, for example, the spread of pathogens; the influence of environmental factors such as climate; the population dynamics and genetics of reservoir species or hosts; the cultural, social, behavioral, and economic dimensions of disease transmission. Research may be on zoonotic, environmentally-borne, vector-borne, or enteric diseases of either terrestrial or freshwater systems and organisms, including diseases of animals and plants, at any scale from specific pathogens to inclusive environmental systems. Proposals for research on disease systems of public health concern to developing countries are strongly encouraged, as are disease systems of concern in agricultural systems. Investigators are encouraged to develop the appropriate multidisciplinary team, including for example, modelers, bioinformaticians, genomics researchers, social scientists, economists, epidemiologists, entomologists, parasitologists, microbiologists, bacteriologists, virologists, pathologists or veterinarians, with the goal of integrating knowledge across disciplines to enhance our ability to predict and control infectious diseases.

This revision adds a request for collaborative projects between U.S. scientists and scientists in Israel through a joint effort of the U.S. National Science Foundation, the U.S. National Institutes of Health, and the U.S.D.A. National Institute of Food and Agriculture and the U.S.-Israel Binational Science Foundation. Multinational collaborative projects between U.S., U.K. and Israel scientists are also welcome. See details in the program announcement in the sections titled "US-Israel Collaborative Projects" and "US-UK-Israel Collaborative Projects." **Due November 19.**

[NOAA-NOS-OCRM-2015-2004211 FY15 Coral Reef NGO Partnership](#)
The purpose of this notice is to invite Non-Governmental Organizations with non-profit 501(c)(3) status and demonstrated expertise and experience in supporting coral reef management in the United States to submit proposals to establish partnerships with the NOAA CRCP to further the conservation of U.S. coral reefs. This document describes the coral reef conservation partnership(s) that the NOAA Coral Reef Conservation Program (CRCP) envisions, identifies the qualities that NOAA desires in a partner, and describes criteria against which applications will be evaluated for funding consideration. Partnerships selected through this notice will be implemented through a cooperative agreement of 12- to 18-months in duration. Pursuant to section 6403 of the Coral Reef Conservation Act (CRCA) (16 U.S.C. 6401 et seq), and pending Congressional appropriations, CRCP funding of approximately $700,000 is expected to be available for initiating partnership(s) with up to four non-governmental organizations in FY 2015. CRCP will consider funding either a single proposal that includes support for all seven coral reef states and territories or up to two proposals in the Pacific Islands (benefitting Hawaii, American Samoa, Guam, and/or the Commonwealth of the Northern Mariana Islands) and up to two proposals in the Atlantic/Caribbean region (benefitting Florida, Puerto Rico, and the U.S. Virgin Islands). Applications must propose a 12- or 18-month work plan, in conformance with the requirements of Section IV of this announcement, and may request between $100,000 and

$700,000 (approximately $100,000 per state or territory), depending on how many of the seven coral states and territories will benefit from the proposed project(s). As required by the CRCA, recipients are required to match NOAA's Federal contributions with non-Federal matching contributions at a minimum ratio of 1:1 unless the applicant is granted a waiver to the matching requirement by the agency. **Due November 19.**

Early Career Research Program Department of Energy - Office of Science
The Office of Science of the Department of Energy hereby invites grant applications for support under the Early Career Research Program in the following program areas: Advanced Scientific Computing Research (ASCR); Biological and Environmental Research (BER); Basic Energy Sciences (BES), Fusion Energy Sciences (FES); High Energy Physics (HEP), and Nuclear Physics (NP). The purpose of this program is to support the development of individual research programs of outstanding scientists early in their careers and to stimulate research careers in the areas supported by the DOE Office of Science. **Due November 20.**

Interdisciplinary Behavioral and Social Science Research (IBSS)
The Interdisciplinary Behavioral and Social Science Research (IBSS) competition promotes the conduct of interdisciplinary research by teams of investigators in the social and behavioral sciences. Emphasis is placed on support for research that involves researchers from multiple disciplinary fields, that integrates scientific theoretical approaches and methodologies from multiple disciplinary fields, and that is likely to yield generalizable insights and information that will advance basic knowledge and capabilities across multiple disciplinary fields. **Due December 2.**

NEH 20141203-PF Sustaining Cultural Heritage Collections
Sustaining Cultural Heritage Collections (SCHC) helps cultural institutions meet the complex challenge of preserving large and diverse holdings of humanities materials for future generations by supporting sustainable conservation measures that mitigate deterioration and prolong the useful life of collections. Libraries, archives, museums, and historical organizations across the country face an enormous challenge: to preserve collections that facilitate research, strengthen teaching, and provide opportunities for life-long learning in the humanities. Ensuring the preservation of books and manuscripts, photographs, sound recordings and moving images, archaeological and ethnographic artifacts, art, and historical objects requires institutions to implement measures that slow deterioration and prevent catastrophic loss. This work is best accomplished through preventive conservation, which encompasses managing relative humidity, temperature, light, and pollutants in collection spaces; providing protective storage enclosures and systems for collections; and safeguarding collections from theft and from natural and man-made disasters. As museums, libraries, archives, and other collecting institutions strive to be effective stewards of humanities collections, they must find ways to implement preventive conservation measures that are sustainable. This program therefore helps cultural repositories plan and implement preservation strategies that pragmatically balance effectiveness, cost, and environmental impact. Sustainable approaches to preservation can contribute to an institution's financial health, reduce its use of fossil fuels, and benefit its

green initiatives, while ensuring that collections are well cared for and available for use in humanities programming, education, and research. **Due December 3.**

Pathogen Predators Solicitation Number: DARPA-BAA-14-51
DARPA is soliciting proposals for research supporting the potential use of Bdellovibrio and/or Micavibrio bacterial predators as therapeutics against infections caused by Gram-negative antibiotic-resistant and priority threat pathogens. **Due December 9.**

Science and Technology Centers: Integrative Partnerships
The Science and Technology Centers (STC): Integrative Partnerships program supports innovative, potentially transformative, complex research and education projects that require large-scale, long-term awards. STCs conduct world-class research through partnerships among academic institutions, national laboratories, industrial organizations, and/or other public/private entities, and via international collaborations, as appropriate. They provide a means to undertake significant investigations at the interfaces of disciplines and/or fresh approaches within disciplines. STCs may involve any area of science and engineering that NSF supports. STC investments support the NSF vision of creating and exploiting new concepts in science and engineering and providing global leadership in research and education.

Centers provide a rich environment for encouraging future scientists, engineers, and educators to take risks in pursuing discoveries and new knowledge. STCs foster excellence in education by integrating education and research, and by creating bonds between learning and inquiry so that discovery and creativity fully support the learning process.

NSF expects STCs to demonstrate leadership in the involvement of groups traditionally underrepresented in science and engineering at all levels (faculty, students, and postdoctoral researchers) within the Center. Centers use either proven or innovative mechanisms to address issues such as recruitment, retention and mentorship of participants from underrepresented groups.

Centers must undertake activities that facilitate knowledge transfer, i.e., the exchange of scientific and technical information with the objective of disseminating and utilizing knowledge broadly in multiple sectors. Examples of knowledge transfer include technology transfer with the intention of supporting innovation, providing key information to public policy makers, or dissemination of knowledge from one field of science to another. **Preliminary Proposals due December 11; full June 16.**

NOAA-NOS-NCCOS-2015-2004202 Center for Sponsored Coastal Ocean Research, Fiscal Year 2015 National Competitive HAB Programs Department of Commerce
The purpose of this document is to advise the public that NOAA/NOS/NCCOS/CSCOR is soliciting proposals for the Ecology and Oceanography of Harmful Algal Blooms Program, the Monitoring and Event Response for Harmful Algal Blooms Program and the Prevention, Control and Mitigation of Harmful Algal Blooms Program. Funding is contingent upon the availability of Fiscal Year 2015 Federal appropriations. It is anticipated that projects funded under this announcement will have a September 1, 2015 start date. Total funding for this research: It is anticipated that up to $2,000,000 may be available in FY 15 for the first year of all HAB projects

combined. Awards are expected to last 2 to 5 years. Approximately 6 to 8 projects are expected to be funded at the level of approximately $100,000. to $600,000. per year per proposal. Background information about the NCCOS/CSCOR efforts can be found at http://coastalscience.noaa.gov/about/centers/cscor . Proposals should be submitted through Grants.gov (http://www.grants.gov .) **Due December 15.**

NIJ FY 14 Research and Development for Publicly Funded Forensic Science Laboratories to Assess the Testing and Processing of Physical Evidence

With this solicitation, NIJ seeks proposals for research, evaluation, and validation projects that will: (1) inform the forensic community of best practices through the evaluation of existing laboratory protocols, (2) result in the production of a validated method(s) that may be replicated by other laboratories in the forensic community, and (3) have a direct and immediate impact on laboratory efficiency and assist in making laboratory policy decisions. The intent of this program is to direct the findings of the research and validation toward the identification of the most efficient, accurate, reliable, and cost-effective existing methods for the identification, analysis, and interpretation of physical evidence for criminal justice purposes. **Due December 15**.

12th Annual P3 Awards: A National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet

Funding Opportunity Numbers (FON) and Associated Research Areas:

EPA-G2015-P3-Q1 – Energy
EPA-G2015-P3-Q2 – Built Environment
EPA-G2015-P3-Q3 – Materials and Chemicals
EPA-G2015-P3-Q4 – Water
EPA-G2015-P3-Q5 – Urban Green Water Infrastructure
EPA-G2015-P3-Q6 – Clean Cookstoves

The U.S. Environmental Protection Agency (EPA), as part of the P3-People, Prosperity and the Planet Award Program, is seeking applications proposing to research, develop, and design solutions to real world challenges involving the overall sustainability of human society. The P3 competition highlights the use of scientific principles in creating innovative projects focused on sustainability. The P3 Award program was developed to foster progress toward sustainability by achieving the mutual goals of improved quality of life, economic prosperity and protection of the planet -- people, prosperity, and the planet – the three pillars of sustainability. The EPA offers the P3 competition in order to respond to the technical needs of the world while moving towards the goal of sustainability. Please see the P3 website for more details about this program. **Due December 16.**

DE-FOA-0001192 Novel In Situ Imaging And Measurement Technologies For Biological Systems Science

The Office of Biological and Environmental Research (BER) of the Office of Science (SC), U.S. Department of Energy (DOE) hereby announces its interest in receiving research applications for novel imaging and measurement technologies for biological systems science. This Funding

Opportunity Announcement (FOA) will consider applications for the development of novel imaging instrumentation and measurement technologies that support the integrative analysis of communication among subcellular compartments, between individual microbial cells and within multicellular communities/plant tissues. The goal is to develop in situ, dynamic and nondestructive approaches to enable multifunctional imaging, quantitative flux measurements, and multiscale integrative analysis of bioenergy-relevant plant and microbial systems. Ideally, these imaging approaches will pave the way for predictive understanding of the spatial and temporal relationships, physical connections, and chemical exchanges that facilitate the flow of materials and information across membranes and between intracellular sp aces. The anticipated outcome of this FOA is the development of in situ imaging and measurement technologies that can (1) resolve multiple key metabolic processes over time within or among cells and (2) bridge the critical gap in linking molecular-scale information to whole-cell, systems-level understanding. **Required Pre-Application due October 15**; **Due December 18.**

Forensic Science Center of Excellence Program

NIST is soliciting applications to establish a Forensic Science Center of Excellence (COE) in which NIST researchers collaborate with interdisciplinary researchers from academia and industry for the wide-spread adoption of probabilistic methods within the forensic science community, specifically in the areas of pattern evidence and digital evidence, by developing the necessary analytical methods, creating a suitable education and training infrastructure in probabilistic methods for the relevant stakeholders, and engaging the forensic science community to promote competence building (more).

Webinar and Website: NIST plans to hold a webinar to offer information on the Forensic Science Center of Excellence program. ***The webinar will be held approximately 30 days after posting of this FFO on August 19.*** The webinar will provide general guidance on preparing applications and provide an opportunity for the public to ask questions about the program. Proprietary technical discussions about specific project ideas will not be permitted, and NIST will not critique or provide feedback on any project ideas during the webinar or at any time before submission of an application to NIST. There is no cost for the webinar, but participants must register in advance. Participation in the webinar is not required for the submission of an application. The webinar will be recorded, and a link to the recording will be available for public access. Additional, information concerning, and registration for, the webinar is available at: www.nist.gov/coe/forensics .

A NIST Forensic Science COE public website exists (www.nist.gov/coe/forensics) that provides information about NIST's involvement in forensic science, including this Forensic Science Center of Excellence Federal Funding Opportunity. NIST anticipates that a "Frequently Asked Questions" section will be maintained and updated as needed to provide additional guidance and clarifying information that may arise related to this Funding Opportunity. Questions regarding this FFO should be submitted in writing and may be posted in the "Frequently Asked Questions" section. **Due December 19.**

DARPA-BAA-14-49 Biological Robustness in Complex Settings (BRICS)

Through the Biological Robustness in Complex Settings (BRICS) program, DARPA is soliciting innovative research proposals to develop the necessary fundamental understanding and component technologies to create robust engineered biological systems. It is expected that technology developed in the BRICS program will enable the safe transition of synthetic biological systems from stringently controlled laboratory environments to more complex settings (Grants.gov posting). The BRICS portfolio will consist of a set of programs, of which this is the first, that aim to elucidate the design principles of engineering robust biological consortia and apply this fundamental understanding towards specific DoD applications. This announcement calls for the development of generalizable approaches that may be ultimately integrated into a complex biological system. DARPA anticipates a second BAA comprising specific challenge scenarios that require the integration of capabilities developed within this program.

Though not strictly required, it is expected that proposals will involve *multidisciplinary teams* that include expertise from both the traditional synthetic biology community, as well as areas that have not typically engaged in this area (e.g., process control and systems engineers, population biologists, and ecologists).

For example, in one technical area, proposers are asked to develop the necessary technology to create a functional, multi-species, **synthetic microbial community**. The community must be engineered to perform a function, which is at the discretion of the proposers but must require essential contributions from all species of the microbial community. Examples of engineered functions include, but are not limited to, the biosynthesis of a specific molecule or the ability to sense and respond to a substance in the environment. The complexity of community composition and function should increase as the BRICS program progresses.

The development of techniques and tools to rapidly sequence, synthesize, and manipulate genetic material has led to the **rapidly maturing discipline of synthetic biology**. The potential applications enabled by this field include efficient on-*demand bio-production of novel drugs, fuels and coatings; engineered microbes able to optimize human health or prevent or treat disease; and bio-based sensors, tags, or tracking systems*. To date, work in synthetic biology has focused primarily on manipulating individual species of domesticated organisms. These species tend to be fragile, requiring precise environmental controls to survive, and unstable, subject to losing their engineered advantages through genetic attrition or recombination. The costs of maintaining required environmental controls and detecting and compensating for genetic alterations are substantial. If applications such as those highlighted above are to come to fruition, methods to increase the biological robustness and stability of engineered organisms must be achieved while maintaining or enhancing assurances of safety.

The Biological Robustness in Complex Settings (BRICS) program will develop the *fundamental understanding and component technologies to engineer biosystems* that maintain their functional value in environments less stringently controlled than those in which these systems are today cultivated, eventually enabling the safe transition of synthetic biological systems from well-defined laboratory environments into more complex settings where they can achieve greater biomedical, industrial, and strategic potential. While this program will support the development of technologies that would be prerequisite to the safe

application of engineered biological systems in the full range of environments in which the DoD has interests, all work performed in this program will occur in controlled laboratory settings.

There are multiple technical focus areas within the solicitation. Initial program funding of $42.5 million. Proposals due February 17.

Open Solicitations and BAAs

Research Interests of the Air Force Office of Scientific Research
AFOSR plans, coordinates, and executes the Air Force Research Laboratory's (AFRL) basic research program in response to technical guidance from AFRL and requirements of the Air Force; fosters, supports, and conducts research within Air Force, university, and industry laboratories; and ensures transition of research results to support USAF needs. The focus of AFOSR is on research areas that offer significant and comprehensive benefits to our national warfighting and peacekeeping capabilities. These areas are organized and managed in three scientific directorates: Aerospace, Chemical and Material Sciences, Physics and Electronics, and Mathematics, Information and Life Sciences. **Open until superseded.**

W912HZ-14-BAA-01 2014 BAA Engineer Research and Development Center — DOD
The U.S. Army Engineer Research and Development Center (ERDC) has issued a Broad Agency Announcement (BAA) for various research and development topic areas. The ERDC consists of the Coastal and Hydraulics Lab (CHL), the Geotechnical and Structures Lab (GSL), the Environmental Lab (EL) and the Information Technology Lab (ITL) in Vicksburg, Mississippi; the Cold Regions Research and Engineering Lab (CRREL) in Hanover, New Hampshire; the Construction Engineering Research Lab (CERL) in Champaign, Illinois; and the Topographic Engineering Center (TEC) in Alexandria, Virginia. The ERDC is responsible for conducting research in the broad fields of hydraulics, dredging, coastal engineering, instrumentation, oceanography, remote sensing, geotechnical engineering, earthquake engineering, soil effects, vehicle mobility, self-contained munitions, military engineering, geophysics, pavements, protective structures, aquatic plants, water quality, dredged material, treatment of hazardous waste, wetlands, physical/mechanical/ chemical properties of snow and other frozen precipitation, infrastructure and environmental issues for installations, computer science, telecommunications management, energy, facilities maintenance, materials and structures, engineering processes, environmental processes, land and heritage conservation, and ecological processes. The BAA is available at http://erdc.usace.army.mil/ and is open until superseded. Proposals may be accepted at any time. For questions regarding proposals to CHL, EL, GSL, TEC & ITL, contact Derek Howard at 601-634-3310 or via email at Derek.A.Howard@usace.army.mil . For questions concerning proposals to CERL, contact Wanda Huber at 217-373-6730 or via email at wanda.l.huber@usace.army.mil or Andrea Krouse at 217-373-6746 or via email at andrea.j.krouse@usace.army.mil . For questions concerning proposals to CRREL, contact Wendy Adams at 603-646-4323 or via email at Wendy.A.Adams@usace.army.mil . Contact the technical personnel listed at the end of each topic area for questions concerning the topic areas themselves. **Open to January 31, 2015.**

Research Development & Grant Writing News

DARPA-BAA-14-25 Innovative Systems for Military Missions
The Tactical Technology Office of the Defense Advanced Research Projects Agency is soliciting executive summaries, white papers and proposals for advanced research and development of Innovative Systems for Military Missions. This solicitation seeks system and subsystem level technologies that enable revolutionary improvements to the efficiency and effectiveness of the military. Novel concepts are sought in the following focus areas: Ground Systems, Maritime Systems, Air Systems, and Space Systems. Proposals may be submitted at any time while this solicitation is open. TTO may publish groups of special topics as modifications to this BAA throughout the year. TTO also welcomes classified submissions. A copy of the Broad Agency Announcement, DARPA-BAA-14-25, has been posted to the Federal Business Opportunities (FedBizOpps.gov) website at https://www.fbo.gov/spg/ODA/DARPA/CMO/DARPA-BAA-14-25/listing.html . **Open to April 24, 2015.**

DARPA-BAA-14-54 Biological Technologies EZ
The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals of interest to the Biological Technologies Office (BTO). Of particular interest are those proposals from entities (both small and large business) that have never received Government funding, or who do not normally propose to Government solicitations. Proposed research should investigate leading edge approaches that enable revolutionary advances in science, technologies, or systems at the intersection of biology with engineering and the physical and computer sciences. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of the art. BTO seeks unconventional approaches that are outside the mainstream, challenge assumptions, and have the potential to radically change established practice, lead to extraordinary outcomes, and create entirely new fields. **Open to July 23, 2015.**

Broad Agency Announcement for Research Initiatives at Naval Postgraduate School
The Naval Postgraduate School (NPS) is interested in receiving proposals for research initiatives that offer potential for advancement and improvement in the NPS core mission of graduate education and research. Readers should note that this is an announcement to declare NPS's solicitation in competitive funding of meritorious research initiatives across a spectrum of science and engineering, business, politics and public/foreign policy, operational and information sciences, and interdisciplinary disciplines that are in line with the NPS' graduate education and research mission. Additional information on the Naval Postgraduate School's graduate education and research mission is available at: General Information: http://www.nps.edu/About/index.html ; NPS Strategic Plan: http://www.nps.edu/About/NPSStratPlan.html ; Academic Programs: http://www.nps.edu/Academics/index.html ; Research Programs: http://www.nps.edu/Research/index.html ; Prior to preparing proposals, potential Offerors are strongly encouraged to contact an NPS point of contact (POC) whose program and research efforts best match the Offeror's field of interest. The academic and research programs links above can be used to locate an appropriate POC by exploring the information provided about

the faculty members in NPS' schools, research institutes, and interdisciplinary centers and research groups. **Open to July 31, 2015**.

[Small University Grants Open 5-Year Broad Agency Announcement](#)
Open to August 26, 2015

[DHS-2014-OHA-BIOWATCH BioWatch Program: 2014-2015](#)
The BioWatch Program is a cornerstone of the Department of Homeland Security's (DHS) comprehensive strategy for countering biological terrorism. The BioWatch Program is an early warning system that is designed to detect the intentional release of select aerosolized biological agents. The BioWatch Program's mission is to provide and maintain a continuous bio-terrorism air monitoring system in metropolitan areas and coordinate with state and local public health communities to prepare for and respond to a bioterrorist event. This mission is accomplished by serving as an early warning system which enhances the security of jurisdictions by providing the needed time to execute their comprehensive concept of operations plans to counter biological terrorism. The Biowatch Program is a critical part of an ongoing national effort to build and sustain preparedness which helps the United States to maintain momentum through targeted jurisdictional planning that highlights preventative actions necessary to allow for a proper and timely response and begin the process to recovery from a biological agent release. The BioWatch Evaluation Program (BWEP) will be conducted under the BioWatch Quality Assurance Program effective April 1, 2013. This program will consist of independent external audits (Quality Assurance) by Signature Science and internal audits (Quality Control) by BioWatch Systems Program Office field personnel. This approach will initially be conducted with a focus on adherence to the BioWatch Field Operations Standard Operating Procedure (SOP), Version 1.3 and will eventually evolve to encompass the Field Operations Quality Assurance Program Plan (QAPP). In order to ensure a robust QA / QC program the jurisdictions may be subject to a QA external audit and a QC internal audit during the same cooperative agreement cycle (year). **Closes September 30, 2015.**

[Nuclear Energy University Programs - Fellowship and Scholarship](#)
This program supports education and training for future nuclear scientists, engineers and policy-makers who are attending U.S. universities and colleges in nuclear-related graduate, undergraduate and two-year study programs. These are zero-dollar awards that will be funded as students apply through the Department of Energy, Office of Nuclear Energy. **Open until November 30, 2015.**

[FY2011 – 2016 Basic Research for Combating Weapons of Mass Destruction (C-WMD) Broad Agency Announcement (BAA)](#)

This BAA is focused on soliciting basic research projects that support the DTRA mission to safeguard America and its allies from WMD (e.g*., chemical, biological, radiological, nuclear, and high-yield explosives*) by providing capabilities to reduce, eliminate, and counter the threat and mitigate its effects.

Open Solicitations from IARPA (Intelligence Advanced Research Projects Activity)
Army Research Laboratory Broad Agency Announcement for Basic and Applied Scientific Research
This Broad Agency Announcement (BAA), which sets forth research areas of interest to the **Army Research Laboratory** (ARL) Directorates and Army Research Office (ARO), is issued under the paragraph 6.102(d)(2) of the Federal Acquisition Regulation (FAR), which provides for the competitive selection of basic research proposals. Proposals submitted in response to this BAA and selected for award are considered to be the result of full and open competition and in full compliance with the provision of Public Law 98-369, "The Competition in Contracting Act of 1984" and subsequent amendments. **Open June 1, 2012 to March 31, 2017**.

ARL Core Broad Agency Announcement for Basic and Applied Scientific Research for Fiscal Years 2012 through 2017

Air Force Research Laboratory, Directed Energy Directorate
University Small Grants Broad Agency Announcement
This is a five-year, open-ended Broad Agency Announcement (BAA) to solicit research proposals for the United States Air Force Research Laboratory (AFRL) Directed Energy (RD) Directorate. This BAA is a university grant vehicle that can provide small grants of $100k or less to students/professors in a timely manner for the purpose of engaging U.S./U.S. territories' colleges and universities in directed energy-related basic, applied, and advanced research projects that are of interest to the Department of Defense. **Open to April 1, 2017.**

HM0210-14-BAA-0001 National Geospatial-Intelligence Agency Academic Research Program
NGA welcomes all innovative ideas for path-breaking research that may advance the GEOINT mission. The NGA mission is to provide timely, relevant, and accurate geospatial intelligence (GEOINT) in support of national security objectives. GEOINT is the exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the Earth. GEOINT consists of imagery, imagery intelligence, and geospatial information. NGA offers a variety of critical GEOINT products in support of U.S. national security objectives and Federal disaster relief, including aeronautical, geodesy, hydrographic, imagery, geospatial and topographical information. The NGA Academic Research Program (NARP) is focused on innovative, far-reaching basic and applied research in science, technology, engineering and mathematics having the potential to advance the GEOINT mission. The objective of the NARP is to support innovative, high-payoff research that provides the basis for revolutionary progress in areas of science and technology affecting the needs and mission of NGA. This research also supports the National System for Geospatial Intelligence (NSG), which is the combination of technology, systems and organizations that gather, produce, distribute and consume geospatial data and information. This research is aimed at advancing GEOINT capabilities by improving analytical methods, enhancing and expanding systems capabilities, and leveraging resources for common NSG goals. The NARP also seeks to improve education in scientific, mathematics, and engineering skills necessary to advance GEOINT capabilities. It is NGA's intent to solicit fundamental research under this BAA. Fundamental

research means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from Industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reason. (National Security Decision Directive (NSDD) 189, National Policy on the Transfer of Scientific, Technical, and Engineering Information). NGA seeks proposals from eligible U.S. institutions for path-breaking GEOINT research in areas of potential interest to NGA, the DoD, and the Intelligence Community (IC). **Open to September 30, 2017.**

AFRL Research Collaboration Program
The objective of the AFRL Research Collaboration program is to enable collaborative research partnerships between AFRL and Academia and Industry in areas including but not limited to Materials and Manufacturing and Aerospace Sensors that engage a diverse pool of domestic businesses that employ scientists and engineers in technical areas required to develop critical war-fighting technologies for the nation's air, space and cyberspace forces through specific AFRL Core Technical Competencies (CTCs). **Open until December 20, 2017.**

United States Army Research Institute for the Behavioral and Social Sciences Broad Agency Announcement for Basic, Applied, and Advanced Scientific Research (FY13-18)
Announcement for Basic, Applied, and Advanced Scientific Research. This Broad Agency Announcement (BAA), which sets forth research areas of interest to the United States Army Research Institute for the Behavioral and Social Sciences, is issued under the provisions of paragraph 6.102(d)(2) of the Federal Acquisition Regulation (FAR), which provides for the competitive selection of proposals. Proposals submitted in response to this BAA and selected for award are considered to be the result of full and open competition and in full compliance with the provisions of Public Law 98-369 (The Competition in Contracting Act of 1984)and subsequent amendments. The US Army Research Institute for the Behavioral and Social Sciences is the Army's lead agency for the conduct of research, development, and analyses for the improvement of Army readiness and performance via research advances and applications of the behavioral and social sciences that address personnel, organization, training, and leader development issues. Programs funded under this BAA include basic research, applied research, and advanced technology development that can improve human performance and Army readiness. The funding opportunity is divided into two sections- (1) Basic Research and (2) Applied Research and Advanced Technology Development. The four major topic areas of research interest include the following: (1) Training; (2) Leader Development; (3) Team and Inter-Organizational Performance in Complex Environments; and (4) Solider/Personnel Issues. Funding of research and development (R&D) within ARI areas of interest will be determined by funding constraints and priorities set during each budget cycle. **Open to February 5, 2018.**

BAA-HPW-RHX-2014-0001 Human-Centered Intelligence, Surveillance Air Force Research Lab
This effort is an open-ended BAA soliciting innovative research concepts for the overall mission of the Human-Centered Intelligence, Surveillance, & Reconnaissance (ISR) Division (711 HPW/RHX). It is intended to generate research concepts not already defined and planned by

RHX as part of its core S&T portfolio. The core RHX mission is to develop human-centered S&T that (1) enables the Air Force to better identify, locate and track humans within the ISR environment and (2) enhance the performance of ISR analysts. To accomplish this mission, the RHX core S&T portfolio is structured into three major research areas: (1) Human Signatures - develop technologies to sense and exploit human bio-signatures at the molecular and macro (anthropometric) level, (2) Human Trust and Interaction – develop technologies to improve human-to-human interactions as well as human-to-machine interactions, and (3) Human Analyst Augmentation – develop technologies to enhance ISR analyst performance and to test the efficacy of newly developed ISR technologies within a simulated operational environment. The RHX mission also includes research carried over from the Airman Biosciences and Performance Program. While not directly linked to the core S&T strategic plan, there exists a unique capability resident within RHX to address critical Air Force operational and sustainment needs resulting from chemical and biological hazards. Research areas include contamination detection, hazard assessment and management, individual and collective protection, and restoration and reconstitution of operational capability. **Open to Feb. 12, 2018.**

[Research Interests of the Air Force Office of Scientific Research](#)
The Air Force Office of Scientific Research (AFOSR) manages the basic research investment for the U.S. Air Force (USAF). To accomplish this task, AFOSR solicits proposals for basic research through this general Broad Agency Announcement (BAA). This BAA outlines the Air Force Defense Research Sciences Program. AFOSR invites proposals for research in many broad areas. These areas are described in detail in Section I of the BAA, Funding Opportunity Description. AFOSR plans, coordinates, and executes the Air Force Research Laboratory's (AFRL) basic research program in response to technical guidance from AFRL and requirements of the Air Force; fosters, supports, and conducts research within Air Force, university, and industry laboratories; and ensures transition of research results to support USAF needs. The focus of AFOSR is on research areas that offer significant and comprehensive benefits to our national warfighting and peacekeeping capabilities. These areas are organized and managed in five scientific directorates: Dynamical Systems and Control (RTA), Quantum & Non-Equilibrium Processes (RTB), Information, Decision, and Complex Networks (RTC), Complex materials and Devices (RTD), and Energy, Power, and Propulsion (RTE). The research activities managed within each directorate are summarized in Section I of the BAA. **Open until superseded.**

[Air Force BAA - Innovative Techniques and Tools for the Automated Processing and Exploitation (APEX) Center](#)
The AFRL/RIEA branch performs Research and Development (R&D) across a broad area of Air Force Command, Control, Communications, Computers/Cyber, and Intelligence (C4I). All applicable "INTs" are investigated with emphasis on Ground Moving Target Indication (GMTI), Electronic Intelligence (ELINT), Signals Intelligence (SIGINT), Image Intelligence (IMINT), Non Traditional Intelligence, Surveillance and Reconnaissance (NTISR), and Measurement and Signature Intelligence (MASINT). The APEX Center is used to perform analysis for seedling efforts, provide baseline tool development for major programs, and to provide realistic operational systems/networks/databases for integration efforts. The APEX Center resources

will be used by the Government to perform the necessary research, development, experimentation, demonstration, and conduct objective evaluations in support of emerging capabilities within the Processing and Exploitation (PEX) area. Software tools, data sets, metrics (Measures of Performance/Measures of Effectiveness), and analysis are needed for the Government to perform the vetting, maturing, and analysis of efforts related to PEX, e.g. Automatic Tracking, Activity Based Intelligence, Entity, Event & Relationship (EER) Extraction, Association & Resolution (A&R), Analysis & Visualization (A&V), Social Network Analysis, Network Analytics, Pattern Discovery, Scalable Algorithms, and Novelty Detection. The AFRL APEX Center is the AFRL/RI gateway into the cross-directorate PCPAD-X (Planning & Direction, Collection, Processing & Exploitation, Analysis & Production, and Dissemination eXperimentation) initiative. **Open to FY 2018**.

BAA-RQKD-2014-0001 Open Innovation and Collaboration Department of Defense Air Force -- Research Lab
Open innovation is a methodology to capitalize on diverse, often non-traditional talents and insights, wherever they reside, to solve problems. Commercial industry has proven open innovation to be an effective and efficient mechanism to overcome seemingly impossible technology and/or new product barriers. AFRL has actively and successfully participated in collaborative open innovation efforts. While these experiences have demonstrated the power of open innovation in the research world, existing mechanisms do not allow AFRL to rapidly enter into contractual relationships to further refine or develop solutions that were identified. This BAA will capitalize on commercial industry experience in open innovation and the benefits already achieved by AFRL using this approach. This BAA will provide AFRL an acquisition tool with the flexibility to rapidly solicit proposals through Calls for Proposals and make awards to deliver innovative technical solutions to meet present and future compelling Air Force needs as ever-changing operational issues become known. The requirements, terms and specific deliverables of each Call for Proposals will vary depending on the nature of the challenge being addressed. It is anticipated that Call(s) for Proposals will address challenges in (or the intersection between) such as the following technology areas: Materials: - Exploiting material properties to meet unique needs - Material analysis, concept / prototype development, and scale up Manufacturing Processes that enable affordable design, production and sustainment operations Aerospace systems: - Vehicle design, control, and coordinated autonomous and/or manned operations - Power and propulsion to enable next generation systems Human Effectiveness: - Methods and techniques to enhance human performance and resiliency in challenging environments - Man – Machine teaming and coordinated activities Sensors and Sensing Systems: - Sensor and sensing system concept development, design, integration and prototyping - Data integration and exploitation. **Open to July 12, 2019.**

Academic Research Funding Strategies, LLC (Page 1)

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What We Do--

> We provide consulting for colleges and universities on a wide range of topics related to research development and grant writing, including:

- **Strategic Planning** - Assistance in formulating research development strategies and building institutional infrastructure for research development (including special strategies for Predominantly Undergraduate Institutions and Minority Serving Institutions)

- **Training for Faculty** - Workshops, seminars and webinars on how to find and compete for research funding from NSF, NIH, DoE and other government agencies as well as foundations. Proposal development retreats for new faculty.

- **Large proposals** - Assistance in planning and developing institutional and center-level proposals (e.g., NSF ERC, STC, IGERT, STEP, Dept of Ed GAANN, DoD MURI, etc.)

- **Assistance for new and junior faculty** - help in identifying funding opportunities and developing competitive research proposals, particularly to NSF CAREER, DoD Young Investigator and other junior investigator programs

- **Facilities and Instrumentation** - Assistance in identifying and competing for grants to fund facilities and instrumentation

- **Training for Staff** - Professional Development for research office and sponsored projects staff

Workshops by Academic Research Funding Strategies

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