

Research Development & Grant Writing News

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Agency Missions and Cultures Are Not Fungible

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By [Mike Cronan](#), co-publisher

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As research grant opportunities become increasingly interdisciplinary, often requiring a team approach for success, it becomes all the more important to better understand the mission, culture, and investment priorities of those federal agencies offering support in a research area of interest. This is particularly important for new and junior faculty, as well as more senior faculty who may see expanded opportunities in a transdisciplinary funding environment spanning several agencies. Often, however, faculty new to research grant writing don't always appreciate this requirement. Research development professionals can intervene in this effort, offering new faculty significant insight into the mission and culture of specific federal research agencies, helping to match the research capacities and interests of new faculty to the most appropriate funding agency.

Understanding the nuances of agency mission, culture, and funding priorities is a learned insight acquired and accumulated over several years. It is gained through interactions with program agency officers, familiarity with a broad range of agency solicitations, engagement with numerous proposals submitted to the agency, the review and decoding of declined proposals, discussions with faculty and professional peers about the most competitive strategies for success at the particular agency, etc. This is a perfect domain wherein research development offices can assist faculty, particularly new faculty lacking familiarity with the ***"competitive grants play book."***

A deep and nuanced insight into agency mission, culture, and investment priorities offers a significant competitive funding advantage over those who are either unaware of it or think it unimportant. Helping new faculty develop this insight and thereby jump start their research career is an invaluable service. It is one thing to have great research potential, but quite another to know how best to pitch that potential to a funding agency.

The first step in this process is to explain to new faculty why they must understand the mission, culture, and investment priorities of funding agencies. The many reasons for this range from the need to know how to actually submit a proposal to the agency to the most important question of all—***what characterizes a successful proposal at a particular agency***. In other words, you will want to answer the most important question on the minds of new faculty seeking advice on grant writing: ***"How do I write a successful research proposal that will help establish my academic career?"***

The response to this question is multi-faceted, but at its core you will explain to new faculty that all research agencies require that proposed research demonstrate significance to the field and/or bring value-added benefits to the agency's mission objectives. Explaining why any proposed research is significant to the field or to the agency mission ***requires that it be described in the context of the state of the field nationally and the mission-critical objectives of the agency***. While this concept appears simple, in practice it often presents a challenge, not just to new faculty but to experienced faculty as well. In fact, failure to do this convincingly is

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often the Achilles Heel of center-level proposals. **Bottom line: In the absence of a full and persuasive research context, reviewers cannot judge the merit of the proposed research.**

For example, merely claiming that Michelle Wie is a highly talented (significant) golfer offers little by way of context for comparison to validate the claim. Providing additional context by noting that she is the youngest woman to qualify for a LPGA tour event provides further evidence to support the claim. Noting that she won the 2014 U.S. Women's Open provides more context to support the claim. Finally, noting that Wie currently ranks 6th among all woman golfers in the world further supports the claim.

In any solicitation, the authoring agency will define specific research goals and objectives related to research important to its mission and/or to the field; in other cases, agencies will define a broad domain of research interest and consider proposals addressing important questions advanced by the proposer within that domain. The latter case describes how unsolicited proposals typically are addressed by an agency, e.g., through the NIH Parent Announcements, NSF Core Programs, or mission agency BAAs.

However, describing the context of your research is not a trivial task. For example, to describe how your research will significantly advance the critical mission objectives of a funding agency and/or the field presupposes that:

1) You have a substantive, nuanced understanding of the agency's mission, typically at several scales, spanning the overarching agency mission and the very specific mission objectives addressed in the solicitation;

2) You have familiarized yourself with research currently funded at the agency, typically by reviewing abstracts of funded projects at the agency website, or through other mechanisms, such as reviewing agency reports and workshops, talking to colleagues with a history of funding success at the agency, or talking to the program officers;

3) You are able to address the very challenging and difficult question of how your research fits in the current state of the field **by characterizing the state of the field as it is at the time of your submittal, a very humbling task for most**; and

4) You are able to integrate tasks 1 to 3 above into a clear, specific, and detailed narrative description of the significance and value of your research. (Keep in mind that it is best to let reviewers bestow superlatives on your proposed research by providing them the narrative clarity and specificity they need to judge the contextual merit of your research. **Self bestowed superlatives are never a good narrative strategy.**)

Moreover, there are many finely-grained questions embedded in tasks 1-4 above that need to be addressed when considering context, for example:

Understanding an agency's mission and culture helps answer these key questions:

- What characterizes a competitive proposal at the agency?
- Who is the audience?
- How do you best address that audience?
- What is a fundable idea within the agency's priorities?
- How are claims of research significance and innovation best supported in the proposal narrative?

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- What arguments are likely to be the most compelling in communicating the significance of your research and its value-added benefits to the agency?
- How do you best communicate to reviewers and program officers your capacity to perform the proposed research?

Understanding the agency's investment strategy helps answer these key questions:

- Why is the agency funding the program?
- What are the origins and history of the program?
- How has the program evolved over time & why?
- What influences have transformed the program & how?
- What is the agency vision for the program going forward?
- How does the program fit the national research context?
- What reports, workshops, etc., informed the program?
- How does the program fit the agency's strategic plan?
- Are there other aligned programs at different scales?

Finally, returning to the title of this article, agency mission, culture, and investment priorities are not fungible, or interchangeable, across agencies. They are unique to an agency. Achieving success at NIH does not mean success will follow at NSF unless the proposer has first learned how the missions, cultures, and investment priorities of the two agencies differ. Many generic similarities exist among agencies. For example, if you were to aggregate and distill the review criteria of all federal research agencies, the following questions would offer a good approximation of what every agency wants a proposer to address in the research narrative: what research do you propose to do?; why do you propose to do it?; why is the research significant?; what are the value-added benefits of the research to the field or the agency mission?; what are the outcomes?; why is your research a good investment for the agency?; etc. *However, the context of these questions will differ significantly by agency.* Knowing those differences gives you a key competitive advantage, particularly when your research is fundable at multiple agencies.

The NIH Common Fund

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By [Mike Cronan](#), co-publisher

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As described in the companion article in this month's newsletter, "*NSF Cross-Cutting Programs*," the reasons NIH established [The Common Fund](#) (CF) share many of the same reasons as its NSF cross-cutting counterpart. Both of these funding mechanisms allow the respective agencies to fund cutting-edge, high-risk research across broad disciplinary domains unconstrained by the longstanding, disciplinary- or disease-focused organizational structures, such as the seven directorates at NSF and the 21 Institutes and Centers at NIH. In many ways, both of these programs give the agencies a method for adapting to the rapidly changing landscape of scientific research that is defining transformational, transdisciplinary research as the future characterized by the following:

- Complexity of the scientific problem
- Disciplines required to solve the problem
- Value-added benefits of interdisciplinary synergies
- High-risk, high-reward research
- Technology development and transfer
 - Innovation incubators
 - Partnerships for commercialization

For example, the **FY 2015** NIH/Common Fund budget request includes funding for a new program in the emerging field of **Bioelectronic Medicines**, a DARPA-like program planned as a high-risk, goal-driven endeavor at the intersection of biology and electronics (see [NIST: A Framework for Bioelectronics Discovery and Innovation](#), February 2009). The NIST report defines the common areas of interest between NIH and NSF in bioelectronics as:

1. Understanding molecule/cell-electronics interfaces;
2. Understanding cellular responses—and their variations to stimulation (electrical, mechanical, chemical, thermal, and the like);
3. Ability to collect and analyze essential data on the state of biomolecules and cells (chemical, physical, structural, functional);
4. Ability to monitor, in real time, the biochemistry of a single cell or a population of cells, which requires comprehension of interaction between molecules;
5. Ability to deliver appropriate therapeutic materials and stimuli in real time; and
6. Ability to detect, identify, and quantify thousands of different biomarkers simultaneously.

The NIH investment in The Common Fund runs a little over half a billion dollars per year: \$533 million in FY2014 and a requested \$583 million for FY2015. As noted in the [President's FY2015 NIH Budget](#), the NIH Common Fund supports research in areas of emerging scientific opportunities, rising public health challenges, and knowledge gaps that deserve special emphasis and would benefit from strategic coordination and planning across the NIH Institutes

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and Centers (ICs). *For research offices engaged in long-range strategic research planning*, the above budget document offers an excellent chance to better understand the future funding landscape at NIH, and thereby better prepare for positioning your institution for competitive advantage in these emerging areas that cut across NIH's traditional research domains and promise a glimpse of what the future holds. "Many Common Fund programs," NIH notes, "support the NIH Director's priority themes for FY 2015:

1. Today's basic science for tomorrow's breakthroughs
2. Precision medicine
3. Big opportunities in big data
4. Nurturing talent and innovation."

As described [abbreviated] by NIH, "The NIH Common Fund was created to support cross-cutting, trans-NIH programs that require participation by at least two NIH Institutes or Centers (ICs) or would otherwise benefit from strategic planning and coordination. The Common Fund encourages collaboration across the ICs while providing the NIH with flexibility to determine priorities for Common Fund support. To date, the Common Fund has been used to support a series of short term, exceptionally high impact, **trans-NIH programs**. The Common Fund is coordinated by the Office of Strategic Coordination, one of the six offices of the [Division of Program Coordination, Planning, and Strategic Initiatives \(DPCPSI\)](#) within the Office of the Director."

The Common Fund's vision, writes the NIH, "is to provide a strategic and nimble approach to address key **roadblocks** in biomedical research that impede basic scientific discovery and its translation into improved human health. In addition, these programs capitalize on **emerging opportunities** to catalyze the rate of progress across multiple biomedical fields. Common Fund programs are expected to transform the way a broad spectrum of health research is conducted. Initiatives that comprise Common Fund programs are intended to be **catalytic** in nature by providing limited term investments in strategic areas to stimulate further research through IC-funded mechanisms."

NIH Common Fund programs are intended to be:

- **Transformative:** Must have high potential to dramatically affect biomedical and/or behavioral research over the next decade
- **Catalytic:** Must achieve a defined set of high impact goals within a defined period of time
- **Synergistic:** Outcomes must synergistically promote and advance individual missions of NIH Institutes and Centers to benefit health
- **Cross-cutting:** Program areas must cut across missions of multiple NIH Institutes and Centers, be relevant to multiple diseases or conditions, and be sufficiently complex to require a coordinated, trans-NIH approach
- **Unique:** Must be something no other entity is likely or able to do.

Current Common Fund Programs include:

- [4D Nucleome](#)

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- [Big Data to Knowledge](#)
- [Bioinformatics and Computational Biology](#)
- [Bridging Interventional Development Gaps \(BrIDGs\)](#)
(Formerly known as NIH-RAID)
- [Building Blocks, Biological Pathways and Networks](#)
- [Enhancing the Diversity of the NIH-Funded Workforce](#)
- [Epigenomics](#)
- [Extracellular RNA Communication](#)
- [Genotype-Tissue Expression \(GTEx\)](#)
- [Global Health](#)
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- [Gulf Oil Spill](#)
- [HCS Research Collaboratory](#)
- [Health Economics](#)
- [High-Risk Research:](#)
 - [NIH Director's Early Independence Award \(EIA\)](#)
 - [NIH Director's New Innovator Award](#)
 - [NIH Director's Pioneer Award](#)
 - [NIH Director's Transformative Research Awards](#)
- [Human Microbiome Project](#)
- [Illuminating the Druggable Genome](#)
- [Knockout Mouse Phenotyping](#)
- [Library of Integrated Network-Based Cellular Signatures \(LINCS\)](#)
- [Metabolomics](#)
- [Molecular Libraries and Imaging](#)
- [Nanomedicine](#)
- [NIH Center for Regenerative Medicine \(NIH CRM\)](#)
- [NIH Medical Research Scholars Program](#)
- [PROMIS: Patient-Reported Outcomes Measurement Information System](#)
- [Protein Capture Reagents](#)
- [Regulatory Science](#)
- [Science of Behavior Change](#)
- [Single Cell Analysis](#)
- [Stimulating Peripheral Activity to Relieve Conditions \(SPARC\)](#)
- [Strengthening the Biomedical Research Workforce](#)
- [Structural Biology](#)
- [Undiagnosed Diseases](#)

Avoid Common Proposal Figure Mistakes

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By Lucy Deckard, co-publisher

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Including figures in your proposal can be extremely effective in engaging your reviewers, communicating the key concepts of the project you're proposing, and convincing reviewers that your approach is likely to succeed. However, when including figures many PIs fall into common traps that undermine the effectiveness of those figures. When figures are not done well, they not only fail to accomplish their purpose, they can actually become a liability by wasting valuable space and irritating the reviewer. Below is a list of the most common figure mistakes that we often see in proposals.

1. The illegible figure.

This proposal cardinal sin is, unfortunately, extremely common. It comes in two flavors: either, in an effort to meet the page limit, the entire figure has been shrunk down to the point that the reader cannot discern the important features of the figure (e.g., Figure 1), or only the text in the figure (such as axis labels in a graph, feature labels in a micrograph, or text in a flow chart) is so small that it is illegible (e.g., Figure 2). Usually, this problem is caused by taking a figure that was originally published in a larger form such as a journal article or PowerPoint slide, and simply reducing its size to fit into a proposal. To avoid this, decide in advance how large your figure will be, and then **redraw your figure** so that all important features are legible at that size. This may be as simple as increasing the fonts of your axis labels, or you may need to reduce the number of your figures or cut text so that your figure is large enough to be effective. If you're using a large screen, keep in mind that your reviewer may be reading your proposal on a small laptop, or she may print it out to read. Make sure you evaluate your figure without the zoom feature on.

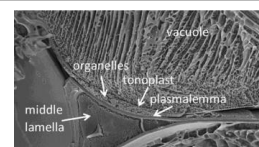


Figure 1. By making this figure so tiny, the important features are difficult to decipher.

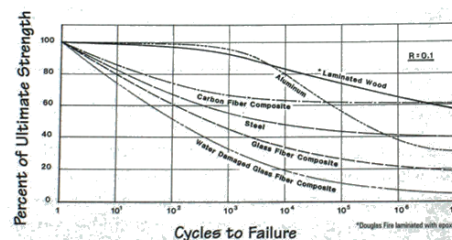
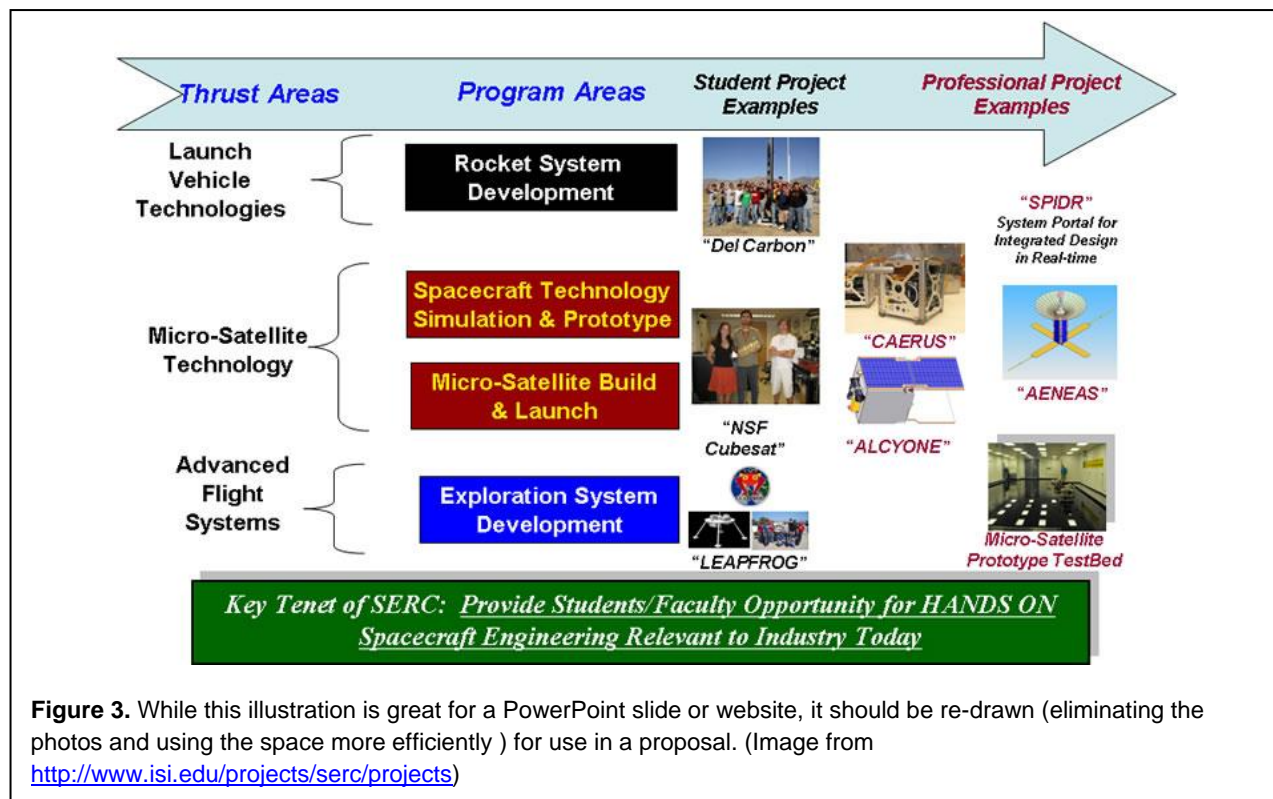


Figure 2. It's easy to see the trends of the plot lines, but that's meaningless when the reader can't read the labels for each line or the axis units.

2. The too-large figure.

This would seem to be the opposite mistake compared to mistake 1 above, but the cause is often the same: the PI took a PowerPoint slide and converted it directly into a figure without reformatting it (e.g., Figure 3). While a PowerPoint slide takes up an entire screen and can include lots of white space, taking up a third or half a page in a proposal with one figure is not only a waste of precious space, it can also convey to the reviewer that you don't have enough to say and are padding your proposal.

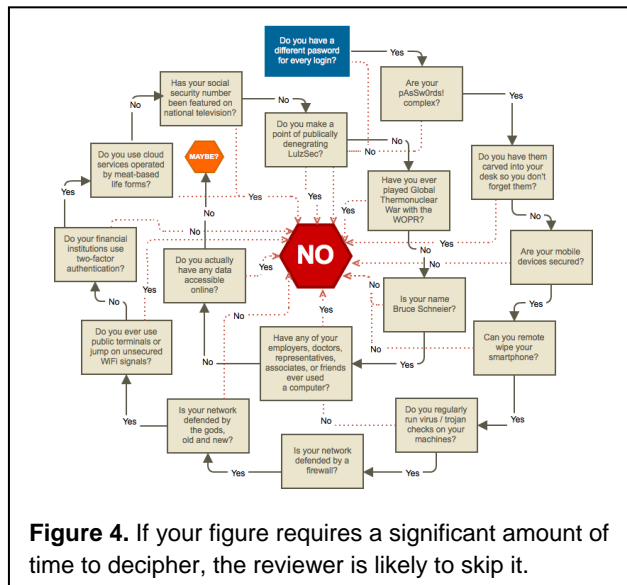


3. The too-complex figure.

While figures are a great way to communicate complex ideas and non-linear relationships, if your figure is so complex that the reviewer will need to spend time trying to decipher it, you have defeated the purpose of the figure. A figure should be easily and quickly understandable and should draw the reader's eye. If your figure includes, for example a spaghetti bowl of lines and arrows (Figure 4), the reader will actively avoid looking at the figure – the opposite of what you're trying to accomplish.

4. The "fluff" figure.

While it's a good idea to include figures in your proposal not only to communicate complex concepts more effectively, but also to make your proposal more reader-friendly, these figures should communicate something substantive. A figure that is included solely for eye appeal (e.g., Figure 5) will irritate your reviewers and, particularly for technical proposals, give the impression that your project is "light weight."



5. The unexplained figure.

The principal that you should never force your reviewer to think applies to figures as well to your text. If you include a figure in your proposal, you should be very clear about what you are trying to communicate with that figure, and you should explicitly state that in your text and in your figure caption. So, instead of saying in your text, “Figure 6 shows the test results.” You should say, for example, “Figure 6 shows that the tensile strength was doubled by incorporating nanoparticles.” The same holds for figure captions. Ideally, all figure captions should include a verb, as in “The test results show that...” or “The viability of our approach is illustrated by the above results...”



Figure 5. *The proposed project has the potential to increase the efficiency of solar cells by 15%.*

[While pretty, this figure is not communicating anything substantive and not only wastes space, but gives the impression that the PI doesn't have serious ideas to convey.]

6. The low-resolution figure.

It is surprising how many proposals written by PIs who are highly qualified scientist and engineers include blurry, low-quality figures. Poor-quality figures create an unfavorable impression of the PI's competence and rigor. One cause for these poor-quality figures is that in older versions of PowerPoint, you could save a slide as a graphics file (.png, .jpg, etc.) with acceptable resolution. However, for reasons known only to Microsoft, more recent versions of PowerPoint result in low resolution figures when you save a slide as a graphic file. To change the export resolution for PowerPoint, you have to go into the registry. You can find instructions [here](#). If you're not comfortable going into the registry (which can go horribly wrong if you do it incorrectly), enlist your IT support or a computer-savvy colleague to help you with this. Once it's done, you won't have to do it again unless you change your software. You might also look for a student (perhaps one of your graduate students or even an undergraduate worker) who is skilled with Photoshop or other graphics programs. Many high schools now have courses in computer graphics, so you may find that the students coming into your programs are more skilled in computer graphics than you are and can help you generate nice looking graphics for your proposal figures.

Figures can be extremely valuable additions to your proposal. Avoid these mistakes to maximize their effectiveness.

Looking to the FY2016 STEM Budget Priorities

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By [Mike Cronan](#), co-publisher

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One of the key inputs to any research strategic plan is information about future funding opportunities. Obviously, it would be nice to foresee the future perfectly, but in the world of research grant writing, that never happens. At best we can see an approximation of what the future holds in terms of research funding opportunities over a short horizon. Predictions beyond that are speculation, or, as Niels Bohr famously observed, “*It's hard to make predictions, especially about the future.*” The federal budget process itself introduces enormous uncertainty into the process of strategic research planning, but creating a strategic plan is much better than failing to plan. Such is the case with the July 18 Memorandum for the Heads of Executive Departments and Agencies released jointly by the directors of the Office of Management and Budget and the Office of Science and Technology, specifically *M-14-11, Science and Technology Priorities for FY 2016 Budget*.

This memorandum outlines the Administration's ***multi-agency science and technology priorities for formulating FY 2016 Budget submissions*** to the Office of Management and Budget ([OMB](#)). The priorities covered in this memo “require investments in R&D; support for activities, such as science, technology, engineering, and mathematics (STEM) education, technology transfer, R&D facilities, and scientific data collection and management, that enable a robust science and technology enterprise; and cooperation among multiple Federal agencies. They build on priorities reflected in this Administration's past budgets and documents.”

Companion memoranda include M-14-14, *Fiscal Year 2016 Budget Guidance for Countering Biological Threats Resource Priorities*, and M-14-13, *Fiscal Year 2016 Budget Guidance for Combating Antibiotic Resistant Bacteria Resource Priorities*. When using these three budget documents ([here](#)) for research strategic planning activities, they are best reviewed in a complementary fashion. In this way, researchers can map an assessment of their institutional research capacities to the three interconnected research domains addressed in the memoranda to determine research intersections for future research submissions.

Keep in mind that these three memoranda cover the key federal research agencies providing the bulk of external research funding to universities. Moreover, these priorities will be implemented differently within the research agenda and mission of each agency. For example, M-14-13 states that “Within research portfolios, Federal agencies are encouraged to identify and pursue clearly defined ‘**Grand Challenges**’--ambitious goals that require advances in science, technology, and innovation to achieve--and to **support high-risk, high-return research**. Agencies should consider, where appropriate and authorized, **supplementing traditional R&D ‘push’ mechanisms (e.g., grants and contracts) with ‘pull’ mechanisms** -- results-based market incentives designed to overcome market failures, engage a wide range of solvers, and catalyze innovation, such as incentive prizes and advanced market commitments. International scientific partnerships should be pursued to advance the priorities in global health and development, share the financial burden of large research projects, and capitalize on complementary research and technology capabilities. “

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Specifically, M-14-11, Science and Technology Priorities for FY 2016 Budget, defines the multi-agency R&D priorities for the FY2016 budget as below:

- Advanced manufacturing and industries of the future
- Clean energy
- Earth observations
- Global climate change
- Information technology and high-performance computing
- Innovation in life sciences, biology, and neuroscience
- STEM education guidance

More detail on the above are provided below as abbreviated from *M-14-11, Science and Technology Priorities for FY 2016 Budget*:

“Advanced manufacturing and industries of the future. The Administration is committed to revitalizing America's manufacturing sector, which will require innovation in the products that are manufactured and the manufacturing systems themselves. Agencies should give priority to those programs that advance the state of the art in manufacturing, **with particular emphasis on government-industry-university partnerships** and enabling technologies for industries of the future (***such as nanotechnology, robotics, materials development, and cyber-physical systems***) that benefit multiple sectors, as described in the National Strategic Plan for Advanced Manufacturing.

“Clean energy. The President's all-of-the-above approach to energy includes a goal to lead the world in clean energy. His Climate Action Plan outlines several key objectives in this domain that should be given priority in the 2016 Budget, including promoting American leadership in renewable energy (***including manufacturing for these technologies and a modernized electric grid***); unlocking innovation in other key clean energy technologies; building a clean and efficient 21st-century transportation sector; and cutting energy waste in homes, businesses, and factories. ***In transportation, there is a particular need to reduce the current fragmentation of R&D activities and funding and to promote a more cohesive R&D framework that links the capabilities of the Departments of Energy, Defense, and Transportation.***

“Earth observations. Earth-observation data serve as the foundation for services that protect human life, property, the economy, and national security, as well as advancing fundamental understanding of the Earth system. Enhanced ***interagency coordination*** is required to ensure adequate observational coverage for public services and Earth-system research and to ensure complementarity and integration of the resulting data.

“Global climate change. . . . In improving the nation's ability to understand, assess, predict and respond to global change, agencies should prioritize activities that strengthen the scientific basis for, as well as the development and use of, actionable science, information, and related tools needed to prepare for and reduce climate related risks.

“Information technology and high-performance computing. Agencies should give priority to investments that address the challenges and opportunities afforded by the ***expansion of big data to advance agency missions and further scientific discovery and innovation*** while providing appropriate privacy protections for personal data. Agencies should

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also prioritize research guided by the Trustworthy Cyberspace: Strategic Plan for Cybersecurity R&D Programs to develop technologies that can protect U.S. systems against cyber-attacks, as well as research to advance technologies for more efficient use of spectrum and cyber-physical systems.

“Innovation in life sciences, biology, and neuroscience. Agencies should give priority to *programs that support fundamental biological discovery research* that could generate unexpected, high-impact scientific and technological advances in health, energy, and food security, particularly in platform technologies as described in the Administration's 2012 National Bioeconomy Blueprint (e.g. technologies for the design of biological systems, understanding systems biology, and high-throughput biology), the President's BRAIN Initiative, and the National Strategy for Biosurveillance. Agencies should prioritize research to fulfill the Cross-Agency Priority Goal for Service Members' and Veterans' Mental Health by supporting research to identify and develop more effective diagnostic and treatment methodologies and metrics to improve mental health and substance use outcomes.

“The Administration is committed to combating the public health and national security challenges associated with the rise in antibiotic-resistant bacteria. Effectively addressing antibiotic resistance will require departments and agencies to support multi-sectoral efforts that *promote new and next-generation antibiotic and diagnostics development, strengthen surveillance for resistance in animals and humans, and enhance antimicrobial stewardship practices in clinical medicine and agriculture*. Departments and agencies should prioritize funding for the identification and development of *new bacterial countermeasures*, including engineering the microbiome, use of small molecules as both antibiotics and synergists, novel vaccines, probiotics, and other innovative mechanisms.

“STEM Education Guidance. Investments in STEM education should adhere to the priorities outlined in the Federal STEM Education 5-Year Strategic Plan, by the Committee on STEM Education (Co STEM) under the NSTC, and should continue to pursue the goals of reducing program fragmentation and enhancing program effectiveness that were supported in the past two budgets. This includes giving *priority to programs that use evidence to guide program design and implementation or that build evidence about what works in STEM education*, using appropriate metrics and improving the measurement of outcomes. Agencies should also ensure that programs are designed to identify and effectively meet the needs of those we are trying to serve--students, teachers, schools, districts and post-secondary institutions. ***The 2016 Budget proposals should align STEM education investments with the Strategic Plan***, with attention to initiatives presented in the President's Council of Advisors on Science and Technology (PCAST) reports Prepare and Inspire and Engage to Excel and be coordinated with other Administration priorities.”

NSF Crosscutting and Interdisciplinary Programs

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By [Mike Cronan](#), co-publisher

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As described in the companion article in this month's newsletter, "*The NIH Common Fund*," the reasons NSF established crosscutting programs share many of the same reasons as its more recent NIH Common Fund counterpart. Both of these funding mechanisms allow the respective agencies to fund cutting-edge, high-risk research across broad disciplinary domains. These programs are unconstrained by the long-standing, disciplinary- or disease-focused organizational structures, such as the seven directorates at NSF and the 21 Institutes and Centers at NIH impose. For NSF, "crosscutting" ***Designates an activity in which two or more NSF directorates and/or other federal agencies participate.*** Both of these programs give the agencies a method for adapting to the rapidly changing landscape of scientific research that is defining transformational, transdisciplinary research as the future. This kind of research is characterized by the following:

- Complexity of the scientific problem
- Disciplines required to solve the problem
- Value-added benefits of interdisciplinary synergies
- High-risk, high-reward research
- Technology development and transfer
 - Innovation incubators
 - Partnerships for commercialization

Many NSF crosscutting programs are of great interest to universities because they are structured to integrate key NSF mission objectives related to research, education and training, and diversity that map perfectly to institutional missions and planned directions. Moreover, familiarity with NSF [crosscutting programs](#) (also see NSF Regional Grants Conference, [Crosscutting Programs Presentation](#), June 2014) and other interdisciplinary programs is an important part of long-term strategic planning at all scales, from the research team level to the institutional level. NSF uses these programs to push the boundaries and define new disciplinary and educational domains that will become integrated into all NSF programs and will likely find their way into other federal funding agency programs as well. Crosscutting and interdisciplinary research and education programs at NSF are, as Wayne Gretzky would say, ***where the research and education puck will be in the future***, not where that puck is today.

Moreover, familiarity with both the crosscutting and interdisciplinary programs at NSF and with the Common Fund at NIH will allow you to divine the future external funding domain at these two key federal research agencies. Your vision of the future does not have to be perfect to give you a significant competitive advantage —it just has to be better than your competition. This is much like the old tale of the two hikers who encounter a bear on the hiking trail. On spotting the bear, one hiker quickly removes her heavy hiking boots. Her companion asked, "Why are you doing that?" "So I can run faster," the now barefoot hiker explained. "You can't outrun a bear," her companion said. "I don't have to outrun the bear," the barefoot

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hiker explained, “I just have to outrun you.” This is why competitive strategic thinking and competitive positioning is so important for long-term funding success, **particularly at an institutional level, where research offices also have the capacity to align resources with the strategic research plan.**

NSF crosscutting programs are designed to promote interdisciplinarity, something NSF does in numerous ways, including such funding mechanisms as solicited interdisciplinary programs, multi-agency programs, center competitions, education and training programs, workshops, conferences and symposiums, and **unsolicited interdisciplinary proposals**. The latter submission mechanism might fly beneath the radar of many, so it is worth noting **the process for submitting unsolicited interdisciplinary programs to NSF is as follows:**

“NSF invites interdisciplinary proposals that are not targeted by a Program Solicitation. Such a proposal may be suitable for submission to and review by a single unsolicited core program, may be more appropriate for co-review by more than one program, or may extend beyond the scope of any current program (in which case it must be appropriate for NSF support; see the Grant Proposal Guide, [NSF Programs and Funding Opportunities](#)).

*“Core programs, even if managed within a single NSF division and with scope within a discipline, often handle interdisciplinary proposals by co-reviewing, and possibly co-funding, with other appropriate programs. **Thus, an interdisciplinary idea could be appropriate for submission to a core program, whether implicitly or explicitly stated in the corresponding Program Description.** Because we recognize that there might not be an obvious natural “home” for every interdisciplinary proposal, a primary purpose of this site is to assist investigators in submitting an interdisciplinary proposal when there is not an appropriate existing NSF program.*

In terms of these programs, the **NSF working definition of interdisciplinary** is as follows: *“Interdisciplinary research is a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or **theories from two or more disciplines or bodies of specialized knowledge** to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice.”* For more on this topic, see [Facilitating Interdisciplinary Research](#), Committee on Facilitating Interdisciplinary Research, National Academy of Sciences, National Academy of Engineering, Institute of Medicine.

Whom should researchers contact at NSF before submitting an Interdisciplinary Proposal? NSF recommends the following process: **“Formulate the idea for the proposal first, before thinking about where it could be submitted and reviewed.** NSF has mechanisms to assure an appropriate review of the idea.”

“With the idea in hand, investigators have numerous options in deciding whom to contact at NSF about submitting an interdisciplinary proposal. The NSF contact should have a programmatic interest in the proposal idea, or a responsibility for identifying someone else at NSF who has such an interest. An investigator might typically consider these options **in the following order.**

- **Identify a Program Officer (PO) through an NSF program.** In many cases, there will be an existing solicited or unsolicited NSF program for which the proposal idea is appropriate. Read the Program Solicitation or Program Description. If the idea seems appropriate, you may contact one of the cognizant POs to confirm this and to indicate

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the interdisciplinary aspects of the idea. If you are uncertain as to whether your idea is appropriate, contact one of the cognizant POs for discussion and clarification.

- **Identify a Program Officer through other means.** One alternative approach is to contact a PO with whom you have previously interacted. This might be someone who is managing an award you currently have, or a PO that you met at a conference. Although your idea for a proposal may be interdisciplinary, it might make sense to initially contact a PO in a particular discipline. In that case, you can use the NSF Homepage to identify a PO in a particular division. That PO may consult with other NSF staff, or recommend another PO.
- **Contact a Point of Contact (POC) listed on this site.** If your proposal is likely to be of particular interest to one NSF Directorate or Office, you can contact the relevant POC for that Directorate listed on this site ([HERE](#)). That individual has the responsibility to see that an appropriate PO is identified in that Directorate to discuss the proposal.
- **Contact NSF through this site.** If there is not an obvious point of contact from one of the above options, you can contact NSF through the contact information provided on this site (email: idr@nsf.gov, telephone: (703) 292-4840)."

What Should I Submit? NSF recommends the following process: "If there is an existing program where your idea is appropriate, you can prepare a proposal for submission to the program in accordance with the Program Description or Program Solicitation. However, in cases where there is not an identified program, you should contact an NSF Program Officer (as indicated in 'Whom Does One Contact'). **An effective approach is to develop a one-to-two paragraph description that can be sent by email. NSF staff can then discuss the document among themselves to decide how best to advise you in proceeding.**"

In conclusion, NSF offers the following FAQs **quoted below** specific to interdisciplinarity at the agency:

"1. What is interdisciplinary research?

There is a large body of scholarly literature about what constitutes a discipline and the meaning of interdisciplinary, multidisciplinary, and transdisciplinary research. For the purposes of this site, we are using the National Academies' definition:

Interdisciplinary research is a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice.

2. Does an interdisciplinary proposal have to be transformative?

No. The extent to which a proposed activity explores potentially transformative concepts is just one of the considerations included in the Intellectual Merit Review criterion (see the NSF [Proposal and Award Policies and Procedures Guide](#)).

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3. Will interdisciplinary proposals be given preference when funding recommendations are made? How much weight is given in the funding decision as to whether a proposal is interdisciplinary?

If the proposal is reviewed through an existing NSF program, this depends on the criteria of that program. Some programs are specifically restricted to interdisciplinary research topics; in those programs, a great deal of weight is given to “interdisciplinary” aspects. Some other NSF programs, while not so restricted, explicitly encourage interdisciplinary research and consider it as a positive factor. In programs that do not distinguish interdisciplinary research as a priority, positive review of the proposal will be based on the combined assessment of the project according to the NSF merit review criteria as per the NSF Grant Proposal Guide (GPG), and any other special criteria that may be part of the specific Program Solicitation or Program Description. In such programs, interdisciplinary proposals that advance the program goals are encouraged and funded, and any ‘weight’ is based on the anticipated potential of the project, not whether it is interdisciplinary or single-disciplinary in nature. If the proposal is not reviewed through an existing program, it will be reviewed using only the two NSF Merit Review Criteria: Intellectual Merit and Broader Impacts (that is, there are no additional program-specific criteria to apply).

4. Has NSF set aside funds for interdisciplinary research proposals?

Collaborations of interdisciplinary teams are encouraged throughout many NSF solicitations. For example, facility and center programs may call for interdisciplinary efforts. In programs which do not have an explicit call for interdisciplinary research, funds are not set aside for these proposals. However, a Division, Office or Directorate may elect to designate funds to help support projects that have particularly noteworthy characteristics or potential, which possibly could result from an interdisciplinary approach.

5. What should I do if I have an interdisciplinary research project that seems to be beyond the scope of any single NSF program?

Contact any Program Officer who might have expertise in or near the area of the proposed research. If the first contact is not the most appropriate, they should be able to direct you to a more relevant person. A Program Officer can also decide to discuss the proposed research with other Program Directors. You can contact one of the Points of Contact identified on this site, or you can make initial contact with NSF through this site (email: idr@nsf.gov, telephone: (703) 292-4840). See “Whom Does One Contact” for more information.

6. I discussed my ideas for an interdisciplinary proposal with several Program Directors but was discouraged to submit. What are my options?

Program Officers play a critical role in providing guidance to the community on the various funding opportunities at the Foundation. The PI always retains the option to submit a proposal, which would then be subject to [merit review](#). You can contact one of the Points of Contact identified on this site, or you can make initial contact with NSF through this site (email: idr@nsf.gov, telephone: (703) 292-4840). These individuals have the responsibility to assure that a mechanism is found for appropriate review of the proposal. This assumes that the

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proposal idea is appropriate for consideration by NSF; you may have been discouraged to submit because it is outside the scope of NSF Programs and Funding Opportunities as described in the [Grant Proposal Guide](#).

7. Is the merit review process less receptive to the funding of interdisciplinary proposals?

No. Promoting and funding interdisciplinary research is a high priority for the Foundation, and in turn Program Officers are expected to seek appropriate panelists and ad hoc reviewers to ensure that the full range of interdisciplinary research is covered by the proper selection of reviewers. NSF Program Officers have the responsibility and authority to recommend awards for proposals that were not among the most highly ranked by the review panels to meet the NSF strategy to develop and maintain a balanced portfolio of investments.

8. Was my proposal declined simply because it was interdisciplinary?

No. However, it is important to remember that being interdisciplinary does not automatically make a proposal more worthy. Unfortunately, NSF must decline a high percentage of meritorious proposals for a variety of reasons.

9. If my funded interdisciplinary research project is not successful in achieving its stated goals, will this jeopardize future funding possibilities?

As with any prior NSF award, reviewers are asked to comment on the quality of the prior work. Note that the proposal may contain up to five pages to describe those results.

10. May I submit the same interdisciplinary research proposal to more than one program concurrently?

No. As indicated in the [NSF Grant Proposal Guide](#), proposers are required to select the applicable program announcement, solicitation or program description. In some instances, investigators can also select more than one of NSF's programs (or Organization Units) that they feel are appropriate to co-review their interdisciplinary research project. Even if submitted to one program, upon receipt, NSF Program Officers may elect to have the proposal reviewed by more than one program.

11. If my interdisciplinary research proposal is reviewed by more than one program, will it be subject to "double jeopardy"?

Preliminary analyses of success rates for proposals that have been assessed by more than one panel indicate that proposals that are co-reviewed by two or more programs actually have, in most cases, a slightly higher chance of being recommended for funding than do proposals reviewed in a single program.

12. May I add extra pages to the Project Description because my proposal is interdisciplinary?

No. The proposal must conform to the Grant Proposal Guide, or to the limitations specified in the Program Solicitation.

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13. How will differing program target dates, deadlines, or submission windows affect the review and processing of my interdisciplinary proposal that is reviewed by multiple programs?

This may lengthen the process somewhat, if one program's submission cycle differs substantially from another's. The Points of Contact identified on this site will be responsible to assure that an appropriate review is carried out, and that consideration for support is based on the review. Within practical programmatic bounds, Program Officers will work together to conduct the review as expeditiously as possible."

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NSF Grants Conference hosted by Colorado State University - June 23-24, 2014

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 - [NSF Award Cash Management Service \(ACM\\$\)](#)
 - [Science, Engineering & Education for Sustainability \(SEES\)](#)
 - [Social, Behavioral and Economic Sciences](#)
 - [Research.gov](#)

US DOE Office of Science Releases Digital Data Management Statement and Requirements for Future Proposals

The U.S. Department of Energy's Office of Science has released a Statement on Digital Data Management. The focus of this statement is sharing and preservation of digital research data. The statement includes requirements that will apply to all Office of Science research solicitations and invitations for new, renewal, and some supplemental funding issued on or after October 1, 2014.

The Office of Science mission is to deliver the scientific discoveries and major scientific tools that transform our understanding of nature and advance the energy, economic, and national security of the United States. The Office of Science Statement on Digital Data Management has been developed with input from a variety of stakeholders in this mission. Here, data management involves all stages of the digital data life cycle including capture, analysis, sharing, and preservation. The focus of this statement is sharing and preservation of digital research data.

To integrate data management planning into the overall research plan, the following requirements will apply to all Office of Science research solicitations and invitations for new,

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renewal, and some supplemental funding issued on or after October 1, 2014. These requirements apply to proposals from all organizations including academic institutions, DOE National Laboratories, and others. These requirements do *not* apply to applications to use Office of Science user facilities.

All proposals submitted to the Office of Science for research funding must include a Data Management Plan (DMP) that addresses the following requirements:

1. DMPs should describe whether and how data generated in the course of the proposed research will be [shared](#) and [preserved](#). If the plan is not to share and/or preserve certain data, then the plan must explain the basis of the decision (for example, cost/benefit considerations, other parameters of feasibility, scientific appropriateness, or limitations discussed in #4). At a minimum, DMPs must describe how data sharing and preservation will enable [validation](#) of results, or how results could be validated if data are not shared or preserved.
2. DMPs should provide a plan for making all research data displayed in publications resulting from the proposed research open, machine-readable, and digitally accessible to the public at the time of publication. This includes data that are displayed in charts, figures, images, etc. In addition, the underlying digital research data used to generate the displayed data should be made as accessible as possible to the public in accordance with the principles stated above. This requirement could be met by including the data as supplementary information to the published article, or through other means. The published article should indicate how these data can be accessed.
3. DMPs should consult and reference available information about data management resources to be used in the course of the proposed research. In particular, DMPs that explicitly or implicitly commit data management resources at a facility beyond what is conventionally made available to approved users should be accompanied by written approval from that facility. In determining the resources available for data management at Office of Science User Facilities, researchers should consult the published [description of data management resources](#) and practices at that facility and reference it in the DMP. Information about other Office of Science facilities can be found in the [additional guidance from the sponsoring program](#).
4. DMPs must protect confidentiality, personal privacy, [Personally Identifiable Information](#), and U.S. national, homeland, and economic security; recognize proprietary interests, business confidential information, and intellectual property rights; avoid significant negative impact on innovation, and U.S. competitiveness; and otherwise be consistent with all applicable laws, regulations, and DOE orders and policies. There is no requirement to share proprietary data.

DMPs will be reviewed as part of the overall Office of Science research proposal merit review process. [Additional requirements](#) and review criteria for the DMP may be identified by the sponsoring program or sub-program, or in the solicitation.

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Unexpected Outcomes: Impacting Higher Education Teaching Practice via High School Outreach

Funding agencies and the science education community at large have pursued strategies for increasing K-12 outreach by scientists and for improving instructional practices in higher education classrooms. However, the simultaneous achievement of both goals is generally not a target for single projects or even single programs. A 4-year project directed by the American Society of Human Genetics from 2007 to 2010 and funded by the National Science Foundation established a network of 70 geneticist-teacher partnerships, each of which developed and implemented genetics lessons for high school students over the course of a full year.

Partnerships were supported through a variety of mechanisms that emphasized pedagogy, such as inquiry and formative assessment, and content, particularly misconceptions in genetics. The explicit goals of the project focused on helping geneticists and high school science teachers to form productive outreach partnerships and on developing infrastructure that supported geneticists' engagement in meaningful education outreach as a worthwhile professional activity. However, as the results presented here indicate, this K-12 outreach project had the unintended and beneficial consequence of motivating instructional change by faculty in higher education.

Examining the Impact of Afterschool STEM Programs

Afterschool programs that provide strong STEM learning experiences are making an impact on participating youth not only become excited and engaged in these fields but develop STEM skills and proficiencies, come to value these fields and their contributions to society, and -- significantly -- begin to see themselves as potential contributors to the STEM enterprise. This paper summarizes evaluation data from a selection of strong afterschool STEM programs, providing a snapshot of the types of substantive impacts afterschool programs are having on youth.

WWC Review of the Report "Evaluation of the College Possible Program: Results From a Randomized Controlled Trial"

The study investigated the effect of the College Possible program, which is designed to serve low-income high school students. College Possible provides a 2-year after-school curriculum to high school juniors and seniors including SAT and ACT test preparation services, college admissions and financial aid consulting, and guidance on the transition to college.

Students apply as high school sophomores and enter the 2-year program as juniors. The program is limited to students from families whose household income is below the city/county median. A minimum GPA of 2.0 is suggested for program participation. Over the course of 2 years, each participant in the College Possible program is scheduled to receive a total of 320 hours of direct program services. The sample was 91% minority, and most were potential first-generation college students.

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[NIH Programs to Focus on Emerging Areas of Science](#)

Scientific areas ripe for targeted investments in technology development and research to improve health are the focus of new programs of the National Institutes of Health's Common Fund. The programs include work to facilitate the study of how sugar modifications affect proteins, to understand the arrangement of DNA within cells in four dimensions, and to enable the development of new therapies that allow control of organ function through manipulation of nerves.

[Information about the NIGMS MARC U-STAR program](#)

The National Institute of General Medical Sciences (NIGMS) has maintained a longstanding commitment to the research training and development of a strong and diverse biomedical and behavioral research workforce. Through its Division of Training, Workforce Development, and Diversity (TWD), NIGMS funds research training, career development, diversity and capacity-building activities through a variety of programs at the undergraduate, graduate, postdoctoral and faculty levels. One such program is the Maximizing Access to Research Careers Undergraduate Student Training in Academic Research (MARC U-STAR) program. The goal of MARC U-STAR is to increase the nation's pool of students from underrepresented groups who have the research experience and science preparation to matriculate and succeed in biomedical and behavioral Ph.D. programs. In 2013, through the MARC U-STAR program, NIGMS supported 60 institutions across the country and 613 trainees.

[Dear Colleague Letter - Stimulating Innovation in STEM Education](#)

The Committee on Science, Technology, Engineering, and Mathematics Education (CoSTEM) under the National Science and Technology Council (NSTC) has developed a five-year strategic plan in support of science, technology, engineering, and mathematics (STEM) education. Among the strategic objectives identified in the plan is a call for broader implementation of effective instructional practices and advances in education.

To challenge NSF researchers to think beyond their research results and toward broader adoption of STEM education and learning innovations, NSF's Innovation Corps Teams Program (I-Corps Teams - a description of which can be found in the I-Corps Teams solicitation) will encourage proposals that take discoveries and promising practices from education research and development and ***promote opportunities for widespread adoption, adaptation, and utilization***. I-Corps for Learning (I-Corps L) Teams will receive support - in the form of mentoring and funding - to accelerate innovation in learning that can be successfully scaled, in a sustainable manner.

Getting the best evidence-based practices out to potential adopters where those practices can benefit large numbers of students or learners, rather than just in a few classrooms

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or informal learning organizations, requires an entrepreneurial approach. There are a number of analogous elements between trying to bring product discoveries to market and getting learning innovations into broad practice that NSF can leverage to help promote widespread use of promising educational learning practices. Through I-Corps L, the tools of science can benefit education researchers by helping them to identify approaches that are effective in STEM teaching and learning.

To be eligible to pursue funding, applicants must have received a prior award from NSF (in a STEM education field relevant to the proposed innovation) that is currently active or that has been active within five years from the date of the proposal submission. Consideration will be given to projects that address K-12, undergraduate, graduate, and postdoctoral research, as well as learning in informal science education environments. The lineage of the prior award extends to the PI, Co-PIs, Senior Personnel, Postdoctoral Researchers, Professional Staff or others who were supported under the award.

Dear Colleague Letter - Optics and Photonics

Through this Dear Colleague Letter, NSF encourages innovative research proposals on optics and photonics that are relevant to one or more Divisions in the Directorates for Engineering (ENG), Mathematical and Physical Sciences (MPS), or Computer and Information Science and Engineering (CISE). Topics of particular interest for Fiscal Year 2015 are (a) the light-matter interaction at the nanoscale that encompass materials, devices, and systems, such as but not limited to low-loss metamaterials, plasmonics, and quantum phenomena that could impact computation, communication, and sub-wavelength resolution detection/imaging; and (b) novel terabit/second and above communication systems, especially those integrating devices and systems that advance the state of the art in networking, high-performance computing, and computer architecture.

Request for Feedback on the Regional Educational Laboratory

IES is seeking feedback about what is working in the current REL contracts, what needs to be improved, and the kinds of resources and services related to data and research that are most needed by educators and policymakers.

Dear Colleague Letter - International Collaboration in the Division of Materials Research

This letter from the NSF Division of Materials Research (DMR) is to provide additional guidance to the community regarding international research and education. This communication follows a Dear Colleague Letter (NSF 13-115) concerning the *“Temporary Suspension of Division of Materials Research (DMR) Computational and Data-Driven Materials Research (CDMR) Program and Materials World Network (MWN) Program in Fiscal Year 2014; Sunset of the DMR International Materials Institutes (IMI) Program.”*

Since announcing the temporary suspension of the Materials World Network (MWN) Program and the sunset of the International Materials Institutes (IMI) Program, DMR has been soliciting internal input from NSF program officers and external input from counterpart funding agencies and the DMR awardee community regarding international research and education. Based on this consultative process and data analysis, DMR plans to suspend the Materials

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World Network (MWN) Program and instead pilot alternative mechanisms for supporting the international objectives of the materials research community.

In the interim, DMR has established a website <https://www.nsf.gov/mps/dmr/international.jsp>) to provide the community with additional information about priorities and opportunities for funding of international research and education. DMR recognizes and supports the importance of global engagement for the U.S. materials research community, as well as the significance of such engagement to the advancement of science and to the education of the next generation of materials researchers.

Frequently Asked Questions (FAQs) for Hazard SEES 2014/2015 Competition

Dear Colleague Letter - NSF Graduate Research Fellowship Program - Invitation for Reviewers

The National Science Foundation (NSF) invites disciplinary and interdisciplinary scientists and engineers, and other professionals with science, technology, engineering and mathematics (STEM) graduate education expertise, to serve as reviewers for the Graduate Research Fellowship Program (GRFP). GRFP supports fellowships in all STEM discipline areas including STEM education research. Service as a GRFP reviewer is an excellent opportunity for individuals to apply their research and career expertise to help identify future leaders in the fields of science and engineering. Reviewers gain experience that enhances their ability to mentor students on preparing GRFP applications and to write effective letters of recommendation. The NSF Graduate Research Fellowship Program (GRFP) is the country's oldest national fellowship program directly supporting graduate students in STEM fields. Since 1952, NSF has awarded more than 48,000 Graduate Research Fellowships. The GRFP has a [long history](#) of identifying fellowship recipients who have the potential to achieve high levels of success in their future STEM careers. The hallmark features of the program are: 1) the award of fellowships to individuals on the basis of merit and potential, and 2) the freedom and flexibility provided to Fellows to define their own research and choose the accredited U.S. graduate institution that they will attend.

NSF seeks diverse panels composed of outstanding researchers and educators from a wide range of institutions, geographic locations, and backgrounds. NSF is particularly interested in recruiting STEM faculty and graduate education experts to be GRFP reviewers from Minority-Serving Institutions and predominantly undergraduate institutions to increase awareness of and participation in the GRFP opportunity at these institutions.

NSF welcomes both new and returning panelists to evaluate the GRFP applications. The entire 2015 panel process will be conducted online, with no travel requirements. Panelists will convene for a virtual orientation session (webinar) in late November, and will be granted access to an assigned pool of applications to read and submit written reviews online during the month of December. In January 2015, panels will convene by field of study online for two virtual panel sessions scheduled on two different days.

If you would like to be considered as a panelist for the GRFP panels, please go to <https://panelists.nsfgrfp.org> to register in the panelist system before August 15 to be considered for the 2015 GRFP review. If you have not served as a panelist for the GRFP before, you may create a new profile by clicking the "Create New Account" link. If you have registered

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as a GRFP panelist in the past, please update your profile by logging in using your email address and password. Once logged in, please upload a PDF copy of either your CV or your NSF BioSketch. Creating a panelist profile does not commit you to serving as a GRFP panelist. Based on anticipated needs, NSF will send formal invitations to potential registered panelists in our database in late September.

NSF relies heavily on the expertise of the research and education community in making fellowship recommendations. The success of the merit review system depends on the willingness of expert reviewers to give their time to the process.

Questions should be addressed to panelists@nsfgrfp.org and additional information on the GRF program can be found at www.nsfgrfp.org.

Dear Colleague Letter - Joint NSF/ENG and AFOSR Funding Opportunity - EAGERs to Energize Innovative Research and Development on Dynamic Data Systems

The Division of Electrical, Communications and Cyber Systems (ECCS) of the Engineering Directorate at the National Science Foundation (NSF), in collaboration with the Air Force Office of Scientific Research (AFOSR), seek Early Concept Grants for Exploratory Research (EAGER) proposals with the potential to transform our ability to understand, manage and control the operation of complex, multi-entity natural or engineered systems, through innovative approaches that consider new dimensions in Big Data, Big Computing, and a symbiotic combination of Data and Computing. NSF's and AFOSR's interests lie in highly innovative projects in their early stages that address unique challenges and identify fruitful directions for analytics to transform engineering and scientific practice across various relevant disciplines and scales. The joint interests of both AFOSR and NSF include novel research in technical areas fostered by the DDDAS (Dynamic Data Driven Applications Systems) Program.

The present letter aims to identify opportunities for new capabilities along three key, innovative, and intertwined science and engineering directions for Big Data, Big Computing, and the relation between Data and Computing. Specifically:

The next wave of Big Data is Dynamic Data arising from ubiquitous sensing and control in engineered and natural systems, through multitudes of heterogeneous sensors and controllers instrumenting these systems. This emerging paradigm calls for seamless and dynamic integration of traditional big data with real-time and archival data relating to ubiquitous sensing and control. The resulting *Large-scale Dynamic Data* environment makes it imperative to dynamically and adaptively manage and schedule these heterogeneous and distributed large-scale data resources, such that these multimodal and multifidelity data are intelligently collected, correlated, and utilized to optimize the understanding, analysis, and operational conditions of engineered and natural multi-entity systems.

Adding to this important dimension of Dynamic Data is an extended view of Big Computing, which includes a new dimension of computing at the sensor and controller levels. The resulting *Large-scale Big Computing* environment consists of a set of computing platforms ranging from high-end and mid-range computing, to computing on the multitudes of sensors and controllers, with this collective set integrated in a dynamic and seamless manner and viewed as a unified platform.

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In the context of Large-scale Dynamic Data and Large-scale Big Computing, the present letter seeks to foster innovative ideas for new capabilities which result from *dynamic integration* between Data and Computing whereby systems instrumentation data and executing models of these systems are dynamically integrated in a feedback control loop, for improved understanding, analysis, and optimized management of operational conditions of engineered and natural multi-entity systems.

The nature and scope of this initiative are multidisciplinary, drawing from theoretical and applied research in signal processing, machine learning, mathematics, statistics, optimization, complex systems modeling and simulation, distributed and fault-tolerant computing, storage, communications and networking, and large-scale systems engineering and integration. The objective of this EAGER call is to engage scientists and engineers experienced in big-scale natural or engineered systems as key drivers for the aforementioned innovative directions, and transform our ability to understand and exploit such innovations to enable new capabilities.

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Agency Reports, Workshops & Research Roadmaps

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[National Vision Needed to Achieve Comprehensive Risk Reduction Along Atlantic and Gulf Coasts](#)

WASHINGTON – A national vision for coastal risk management that includes a long-term view, regional solutions, and recognition of the full array of economic, social, environmental, and safety benefits that come from risk management is needed to reduce the impacts of natural disasters along the Atlantic and Gulf coasts of the United States, says a new report from the National Research Council. To support this vision, a national coastal risk assessment is needed to identify coastal areas that face the greatest threats and are high priorities for risk-reduction efforts.

The report defines coastal risk as the potential for hazards, such as storm-surge-induced flooding and wave damage, to adversely affect human health and well-being, economic conditions, infrastructure, support services, and social, environmental, and cultural resources in coastal communities. In recent years, an increase in the population and property located in hazardous areas has contributed to a dramatic rise in coastal-storm-related losses. Climate change poses additional threats to coastal communities from sea-level rise and possible increases in the strength of the most intense hurricanes.

NAE Center for Engineering Ethics and Society Releases Videos on Climate Change

The NAE Center for Engineering, Ethics, and Society has produced two videos from interviews conducted at the "Climate Change and America's Infrastructure: Engineering, Social, and Policy Challenges" [meeting](#) in January. The videos highlight participant views regarding the impacts and importance of addressing climate change and the various types of expertise that will be needed to adequately address stresses to engineering systems. Both videos are designed to serve as a starting point for discussion and enable educators and others to inform engineers and the public about the numerous challenges posed by climate change.

- [Climate and Infrastructure I: Why does it matter?](#)
- [Climate and Infrastructure II: Who Should Address It?](#)

[Fukushima Daiichi Nuclear Accident Underscores Need to Actively Seek Out and Act on New Information About Nuclear Plant Hazards, Says New NAS Report](#)

WASHINGTON – A new congressionally mandated report from the National Academy of Sciences concludes that the overarching lesson learned from the 2011 Fukushima Daiichi nuclear accident is that nuclear plant licensees and their regulators must actively seek out and act on new information about hazards with the potential to affect the safety of nuclear plants. The committee that wrote the report examined the causes of the Japan accident and identified findings and recommendations for improving nuclear plant safety and offsite emergency responses to nuclear plant accidents in the U.S.

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The accident at the Fukushima Daiichi plant was initiated by the Great East Japan Earthquake and tsunami on March 11, 2011. The earthquake knocked out offsite AC power to the plant, and the tsunami inundated portions of the plant site. Flooding of critical equipment resulted in the extended loss of onsite power with the consequent loss of reactor monitoring, control, and cooling functions in multiple units. Three reactors -- Units 1, 2, and 3 -- sustained severe core damage, and three reactor buildings -- Units 1, 3, and 4 -- were damaged by hydrogen explosions. Offsite releases of radioactive materials contaminated land in Fukushima and several neighboring prefectures, prompting widespread evacuations, distress among the population, large economic losses, and the eventual shutdown of all nuclear power plants in Japan.

[Big Data in Materials Research and Development](#): Summary of a Workshop (2014)

Big Data in Materials Research and Development is the summary of a workshop convened by the National Research Council Standing Committee on Defense Materials Manufacturing and Infrastructure in February 2014 to discuss the impact of big data on materials and manufacturing. The materials science community would benefit from appropriate access to data and metadata for materials development, processing, application development, and application life cycles. Currently, that access does not appear to be sufficiently widespread, and many workshop participants captured the constraints and identified potential improvements to enable broader access to materials and manufacturing data and metadata. This report discusses issues in defense materials, manufacturing and infrastructure, including data ownership and access; collaboration and exploitation of big data's capabilities; and maintenance of data.

New Funding Opportunities

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Content Order

New Funding Posted Since July 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.]

New Funding Solicitations Posted Since July 15 Newsletter

[Help the National Science Foundation Improve NSF.gov by Taking Our Online Survey](#)

BLM-AK CESU AKNHP Botanical and Invasive Species Support

The mission of the CESU Network is to promote, conduct, and provide research, technical assistance and education services nationwide in support of the missions of participating federal agencies and their partners concerning natural and cultural resource management on federal and/or private lands and waters. This project has been use to obtain field data and observations of invasive plant occurrences in areas previously impacted by wildfire to assist with land management decisions and providing technical assistance regarding species management. Develop and write technical reports outlining best management practices, life history information, and modeled distribution on public lands. Training BLM staff to conduct inventory and monitoring work for species of interest. Conduct inventory and monitoring studies for invasive species occurrence; data management and upload; collect, identify, and mount specimens. **Due August 22.**

ED-GRANTS-072414-001 Office of Postsecondary Education (OPE): Center for the study of Distance Education and Technological Advancements

Purpose of Program: The objective of this program is to support a Center for the Study of Distance Education and Technological Advancements at an institution of higher education as authorized by section 741(a)(3) of the Higher Education Act (HEA) of 1965, as amended and as described in S. Rpt. 113-71, 113th Cong., 1st Sess. at 196 (2013) to study and develop best practices in postsecondary education for online education and the use of technology-based teaching and learning tools. The Center funded under this section must, in collaboration with other institutions of higher education and organizations: (a) Collect and evaluate data on outcomes achieved by students, including students with disabilities, associated with courses or programs that utilize online education and technology-based teaching and learning tools, (b) identify effective and accessible technologies, materials and practices, that work for all students in these courses or programs and (c) disseminate the findings widely. Eligible Applicants: An IHE that: (1) Is accredited by an accrediting agency or association recognized by the Secretary, (2) participates in the Federal student financial aid programs under title IV of the HEA, and (3) **has minority student enrollment of no less than 15 percent.** **Due August 25.**

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[U.S. and Russia University Partnership Program Department of State](#)

The Public Affairs Section of the U.S. Embassy in Moscow announces an open competition for the FY 2014 US-Russia University Partnership Program. Public and private non-profit organizations and institutions of higher education meeting the provisions described in Internal Revenue Code section 26 USC 501(c)(3) may submit proposals to develop a university partnership program that matches Russian institutions of higher learning with U.S. counterparts. The program will facilitate the universities to work together on joint projects with the goal of forming long-lasting and sustainable relationships beyond the grant period. **Due August 29.**

[DE-FOA-0001172 Environmental System Science 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 research applications for environmental system science ([FedConnect](#)). The goal of this Funding Opportunity Announcement (FOA) is to improve the representation of terrestrial ecosystems and subsurface processes appropriate for advancing Earth system model capabilities, thereby improving the quality of climate model projections and providing the scientific foundation needed to inform DOE's energy decisions. The FOA will consider applications that focus on measurements, experiments, modeling or synthesis to provide improved quantitative and predictive understanding of terrestrial ecosystems that, in turn, influence atmospheric greenhouse gas concentrations and thereby affect the greenhouse gas forcing of climate. The emphasis of this FOA is to understand non-managed terrestrial ecosystems in the context of a changing climate. Applicants should pose their research applications in the context of representing terrestrial ecosystem and/or subsurface processes appropriate for improving the predictability of climate based on Earth system models. **Required preapplication due Sept. 3; Full Due December 2.**

[NIST Advanced Manufacturing Technology Consortia \(AMTech\) Program, Planning Awards](#)

NIST is soliciting applications for Planning Awards from eligible applicants to establish new and strengthen existing industry-driven consortia that identify and support basic and applied research on long term, pre-competitive and enabling technology development for advanced manufacturing. These consortia address major technological barriers that inhibit the growth of advanced manufacturing in the U.S.; identify and prioritize research projects supporting long term industrial research needs; engage in a range of eligible activities including but not limited to creating new or updating industry-driven, shared-vision technology roadmaps; and catalyze the development of a technology infrastructure and American excellence in advanced manufacturing. **Preapplication due September 5.**

[Capacity Building Grants for Non-Land Grant Colleges of Agriculture Program \(NLGCA\)](#)

NLGCA Institutions may use the funds: (a) to successfully compete for funds from Federal grants and other sources to carry out educational, research, and outreach activities that address priority concerns of national, regional, State, and local interest; (b) to disseminate information relating to priority concerns to interested members of the agriculture, renewable resources, and other relevant communities, the public, and any other interested entity; (c) to encourage

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members of the agriculture, renewable resources, and other relevant communities to participate in priority education, research, and outreach activities by providing matching funding to leverage grant funds; and (d) through: (1) the purchase or other acquisition of equipment and other infrastructure (not including alteration, repair, renovation, or construction of buildings); (2) the professional growth and development of the faculty of the NLGCA Institution; and (3) the development of graduate assistantships. **Due September 5.**

AHRQ Health Services Research Projects (R01)

This FOA solicits Large Research (R01) Project applications. The Research Project Grant (R01) is an award made by AHRQ to an institution/organization to support a discrete, specified health services research project. The R01 research plan proposed by the applicant institution/organization must be related to the mission and portfolio priority research interests of AHRQ. Although the PD/PI writes the grant application and is responsible for conducting and supervising the research, the actual applicant is the research institution/organization.

The AHRQ mission is to produce evidence to make health care safer, higher quality, more accessible, equitable and affordable, and to work with HHS and other partners to make sure that the evidence is understood and used. Within the mission, AHRQ's specific priority areas of focus are:

- Improve health care quality by accelerating implementation of Patient Centered Outcomes Research (PCOR)
- Make health care safer
- Increase accessibility by evaluating expansions of insurance coverage
- Improve health care affordability, efficiency and cost transparency

These areas, relevant to Research Project Grant (R01) applications submitted to AHRQ, are articulated at (<http://www.ahrq.gov/funding/policies/foaguidance/index.html>). Contacting an AHRQ staff member may help focus the research plan based on an understanding of the AHRQ mission and research priorities. AHRQ staff contacts can be found at <http://www.ahrq.gov/fund/staffcon.htm> .

As AHRQ is interested in funding research that will have an important impact on health care practice and policy, applicants to this FOA are encouraged to submit a structured abstract of the potential findings that might arise from the planned research proposed. If a structured abstract is included as part of the grant application, it should be submitted as an appendix.

- See more at: <http://grants.nih.gov/grants/guide/pa-files/PA-14-291.html#sthash.cO0mTklo.dpuf> . **Open to July 6, 2017. Open Date (Earliest Submission Date): September 5.**

EPA's Small Business Innovation Research (SBIR) Program

The U.S. Environmental Protection Agency announces the release of the [*Small Business Innovation Research \(SBIR\) Program Solicitation*](#) to develop and commercialize new environmental technologies. EPA is one of 11 federal agencies that participate in the SBIR Program as a result of the Small Business Innovation Development Act of 1982. EPA is calling for small businesses to apply for Phase I awards up to \$100,000 to demonstrate proof of concept in

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one of the following topic areas: air and climate, manufacturing, toxic chemicals, water, building materials, food waste, and homeland security. Phase I awardees are eligible to receive Phase II funding, up to \$300,000 for two years, through an additional application process. SBIR companies cover a broad spectrum of research areas and are supported by EPA's Sustainable and Healthy Communities (SHC) research program. EPA's Sustainable and Healthy Communities (SHC) Research Program conducts research to help communities make better decisions to sustain a healthy society and environment. SHC provides useful science and tools for decision makers at the federal, regional, state, and community levels to help communities advance sustainability as well as achieve regulatory compliance. **Due September 11.**

Early Career Research Program DOE National Laboratory Announcement Number: LAB 14-1170

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. **Pre-Proposal Due Date: 09/11/2014 at 5 PM Eastern Time (A Pre-Proposal is required); Encourage/Discourage Date: 10/09/2014 at 5 PM Eastern Time; Proposal Due Date: 11/20/2014 at 5 PM Eastern Time.**

EPA-OSWER-OBLR-14-06 FY2015 Brownfields Area-Wide Planning Grant

This notice announces the availability of EPA grant funds and solicits proposals from eligible entities to conduct research, technical assistance, and/or training activities that will enable the entity to develop an area-wide plan for brownfields assessment, cleanup, and subsequent reuse. Brownfields area-wide planning (BF AWP) grant-funded activities must be directed to one or more brownfield site(s) located in a specific area, such as a neighborhood, a district (e.g., downtown, arts or shopping area), a local commercial corridor, a community waterfront, or a city block. Each project funded under this grant must result in an area-wide plan which includes specific plan implementation strategies for assessing, cleaning up, and reusing the brownfields site(s) as well as related brownfields and project area revitalization strategies. **Due Sept. 22.**

NOAA-NWS-NWSPO-2015-2004117 Round 1 of Research to Operations Initiative

This program announcement is for projects to be conducted for a two-year period with an anticipated start date of May 1, 2015 unless otherwise directed. All public or private sources may submit to this Federal Funding Opportunity; however, partnering with universities is highly encouraged. Eligible applicants are institutions of higher education; other nonprofits; commercial organizations; state, local and Indian tribal governments; and Federal agencies. The NWS Research to Operations (R2O) Initiative is a NOAA initiative to expand and accelerate critical weather forecasting research to operations to address growing service demands and increase the accuracy of weather forecasts. This will be achieved through, (1) accelerated development and implementation of improved global weather prediction models; (2) improved

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data assimilation techniques; (3) nested regional prediction capabilities; (4) post-processing forecast tools and techniques and (5) improved software architecture and system engineering. The NWS R2O Initiative is soliciting proposals from all public and private sources for projects involving applied science, modeling and/or data assimilation that supports development of the Next Generation Global Prediction System (NGGPS), effective assimilation for environmental observations at global and regional scales and, hurricane and other high-impact weather forecast models that meet societal requirements to effectively mitigate economic disruption. This notice provides guidelines for submission of proposals. This notice also describes opportunities and application procedures to demonstrate capabilities that have the potential to be incorporated into operational NWS numerical weather prediction (NWP) analyses and forecasts. The R2O initiative addresses NOAA's Weather Ready Nation (WRN) strategic goal and supporting objectives. The Program also represents an NOAA/NWS effort to foster a cost-effective transition from basic and applied research to operations and services ***through collaborative research and developmental testing between institutions which have expertise in the environmental sciences and operational forecast scientists.*** These activities will engage researchers in applied research of interest with the operational meteorological community and will improve the accuracy of forecasts and warnings of environmental hazards by applying scientific knowledge and information to operational products and services. **Due September 30.**

Frontier Observatory for Research in Geothermal Energy (FORGE) DE-FOA-0000890

The Department of Energy National Energy Technology Laboratory, on behalf of the Geothermal Technologies Office, is seeking applications for establishing and managing a dedicated Enhanced Geothermal Systems Field Laboratory site. The full Funding Opportunity Announcement is posted on the EERE eXCHANGE website at <https://eere-exchange.energy.gov>. Applications must be submitted through the EERE eXCHANGE website to be considered for award. The applicant must first register and create an account on the EERE eXCHANGE website. A User Guide for the EERE eXCHANGE can be found on the EERE website <https://eere-exchange.energy.gov/Manuals.aspx> after logging in to the system. Information on where to submit questions regarding the content of the announcement and where to submit questions regarding submission of applications is found in the full announcement posted on the EERE eXCHANGE website. **Due October 1.**

CyberCorps(R): Scholarship for Service (SFS) Defending America's Cyberspace

The CyberCorps(R): Scholarship for Service (SFS) program seeks proposals that address cybersecurity education and workforce development. The Scholarship Track provides funding to award scholarships to students in cybersecurity. In return for their scholarships, recipients will work after graduation for a Federal, State, Local, or Tribal Government organization in a position related to cybersecurity for a period equal to the length of the scholarship. The Capacity Track seeks innovative proposals leading to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals. They contribute to the expansion of existing educational opportunities and resources in cybersecurity and focus on such efforts as research on the teaching and learning of cybersecurity, including research on materials, methods and small-scale interventions; curricula recommendations for new courses,

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degree programs, and educational pathways with plans for wide adoption nationally; teaching and learning effectiveness of cybersecurity curricular programs and courses; integration of cybersecurity topics into computer science, information technology, engineering and other existing degree programs with plans for pervasive adoption; partnerships between institutions of higher education, government, and relevant employment sectors leading to improved models for the integration of applied research experiences into cybersecurity degree programs. **Submission windows beginning October 9.**

Research Training Groups in the Mathematical Sciences (RTG)

The long-range goal of the Research Training Groups in the Mathematical Sciences (RTG) program is to strengthen the nation's scientific competitiveness by increasing the number of well-prepared U.S. citizens, nationals, and permanent residents who pursue careers in the mathematical sciences. The RTG program supports efforts to improve research training by involving undergraduate students, graduate students, postdoctoral associates, and faculty members in structured research groups centered on a common research theme. Research groups supported by RTG must include vertically-integrated activities that span the entire spectrum of educational levels from undergraduates through postdoctoral associates. **Due October 14.**

Partnerships for International Research and Education (PIRE)

Partnerships for International Research and Education (PIRE) is an NSF-wide program that supports international activities across all NSF supported disciplines ([Frequently Asked Questions \(FAQs\) for Partnerships for International Research and Education \(PIRE\)](#)). The primary goal of PIRE is to support high quality projects in which advances in research and education could not occur without international collaboration. PIRE seeks to catalyze a higher level of international engagement in the U.S. science and engineering community. International partnerships are essential to addressing critical science and engineering problems. In the global context, U.S. researchers and educators must be able to operate effectively in teams with partners from different national environments and cultural backgrounds. PIRE promotes excellence in science and engineering through international collaboration and facilitates development of a diverse, globally-engaged, U.S. science and engineering workforce. This PIRE competition will be open to all areas of science and engineering research which are supported by the NSF. **Preliminary due October 21; full May 15.**

Cost-Effective Aviation Technologies and Research to Support Counter-Poaching Operations Related to Endangered, Protected, and/or Regulated Wildlife

With this solicitation, NIJ seeks proposals from interested parties to: (1) identify and assess the highest priority technology needs of the Kenyan Wildlife Services (KWS) Air wing in furtherance of their counter-poaching mission; (2) purchase and deliver aircraft and supporting technologies as informed by the needs assessment; and (3) conduct an operational evaluation of the purchased and delivered aircraft and supporting technologies. While the technology will be delivered to the Kenyan Wildlife Service, the operational evaluation of the aircraft and supporting technology will be made widely available to U.S. State and local law enforcement –

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particularly those in rural and tribal jurisdictions operating in similar environments as the KWS Air Wing – who are implementing or considering the use of low-cost aircraft to support their mission. This project in part fulfills and promotes the objectives of the **Presidential Executive Order on Combating Wildlife Trafficking issued July 1, 2013**, which calls for enhanced domestic efforts to combat wildlife trafficking and increased assistance to foreign nations in building capacity to combat wildlife trafficking. **NIJ plans to fund 12-18 month project period at approximately \$1 million.** Among other deliverables, the successful applicant will be expected to deliver an electronic document based on the above listed tasks that will serve as both a best practices and lessons learned guide. **The deadline for applications under this solicitation is October 22.**

Improving Undergraduate STEM Education National Science Foundation

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. **Various deadlines beginning October 22.**

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.**

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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.**

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.

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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.**

[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.**

[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.**

[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.**

[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

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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.**

URL Links to New & Open Funding Solicitations

Links verified: Wednesday, February 19, 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](#)

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- [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

Partnerships for Innovation: Accelerating Innovation Research- Technology Translation

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). Overall, the PFI program offers opportunities to connect new knowledge to societal benefit through translational research efforts and/or partnerships that encourage, enhance and accelerate innovation and entrepreneurship. The subject of this solicitation is PFI: AIR-Technology Translation (PFI: AIR-TT). The PFI: AIR-TT solicitation serves as an early opportunity to move previously NSF-funded research results with promising commercial potential along the path toward commercialization. Projects are supported to demonstrate proof-of-concept, prototype, or scale-up while engaging faculty and students in entrepreneurial/innovative thinking. **WEBINAR:** A webinar will be held within 6 weeks of the release date of this solicitation to answer any questions about this solicitation. Details will be posted on the IIP website (<http://www.nsf.gov/eng/iip/pfi/air-tt.jsp>) as they become available. **Required LOI September 2; full March 15.**

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EPA-G2014-STAR-J1 Air, Climate and Energy (ACE) Centers: Science Supporting Solutions

The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking applications for Air, Climate and Energy (ACE) Centers. EPA is interested in supporting research on the development of sound science to systematically inform policy makers at the state and local levels regarding the development of innovative approaches to enable effective implementation of air pollution control strategies to achieve the greatest public health benefits by reducing exposure to harmful air pollution. Priority research areas include: enhancing understanding of spatial and temporal differences in individual pollutants and pollutant mixtures within and across different areas (including urban areas, or between urban, suburban, and rural areas) or geographic regions; identifying and improving the characterization of the most important factors contributing to regional or city-to-city differences or similarities in air pollution and health effects beyond topography and meteorology; improving the ability to understand and project how these contributing factors and differences may change over the next one to several decades; and advancing scientific knowledge and tools needed to develop robust strategies for air pollution control to improve public and environmental health under a variety of conditions, including consideration of approaches for addressing climate change preparedness. **Due September 4.**

Geography and Spatial Sciences Program (GSS)

This solicitation provides instructions for preparation of a set of different kinds of proposals to the Geography and Spatial Sciences (GSS) Program, including regular research awards; proposals for awards for conferences, workshops, group-travel support, and community-development or community-serving activities; proposals for research coordination network (RCN) awards; and proposals for rapid-response research (RAPID) awards. This solicitation replaces instructions that had been included in the general GSS solicitation (previously [NSF 12-570](#)). The Geography and Spatial Sciences Program sponsors research on the geographic distributions and interactions of human, physical, and biotic systems on Earth. Investigators are encouraged to propose plans for research about the nature, causes, and consequences of human activity and natural environmental processes across a range of scales. Projects on a variety of topics qualify for support if they offer promise of contributing to scholarship by enhancing geographical knowledge, concepts, theories, methods, and their application to societal problems and concerns. **Due September 4.**

Capacity Building Grants for Non Land Grant Colleges of Agriculture Program

NLGCA Institutions may use the funds: (a) to successfully compete for funds from Federal grants and other sources to carry out educational, research, and outreach activities that address priority concerns of national, regional, State, and local interest; (b) to disseminate information relating to priority concerns to interested members of the agriculture, renewable resources, and other relevant communities, the public, and any other interested entity; (c) to encourage members of the agriculture, renewable resources, and other relevant communities to participate in priority education, research, and outreach activities by providing matching funding to leverage grant funds; and (d) through: (1) the purchase or other acquisition of equipment and other infrastructure (not including alteration, repair, renovation, or

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construction of buildings); (2) the professional growth and development of the faculty of the NLGCA Institution; and (3) the development of graduate assistantships. **Due September 5.**

DARPA-BAA-14-30 Hand Proprioception DARPA - Biological Technologies Office

The HAPTIX program will develop new science and technology to achieve closed-loop control of dexterous mechatronic prostheses that will provide amputees with prosthetic limb systems that feel and function like natural limbs. HAPTIX will focus on development of implantable peripheral interfaces for volitional motor recording and sensory feedback signals; implantable electronic systems to transferport information between these interface(s) and the prosthesis; and sophisticated encoding and decoding algorithms to transform recorded volitional motor control signals into limb movements and patterned stimulation into naturalistic touch and proprioceptive sensations. System performance and the ultimate benefit to prosthetic users will be determined in a year-long, take-home trial before the end of the HAPTIX program. **Due September 10.**

Digital Humanities Start-up Grants National Endowment for the Humanities

The Digital Humanities Start-Up Grants program awards relatively small grants to support the planning stages of innovative projects that promise to benefit the humanities. Proposals should be for the planning or initial stages of digital initiatives in any area of the humanities. Digital Humanities Start-Up Grants may involve research that brings new approaches or documents best practices in the study of the digital humanities; planning and developing prototypes of new digital tools for preserving, analyzing, and making accessible digital resources, including libraries and museums digital assets; scholarship that focuses on the history, criticism, and philosophy of digital culture and its impact on society; scholarship or studies that examine the philosophical or practical implications and impact of the use of emerging technologies in specific fields or disciplines of the humanities, or in interdisciplinary collaborations involving several fields or disciplines; ¿ innovative uses of technology for public programming and education incorporating both traditional and new media; and new digital modes of publication that facilitate the dissemination of humanities scholarship in advanced academic as well as informal or formal educational settings at all academic levels. Innovation is a hallmark of this grant category, which incorporates the high risk/high reward paradigm often used by funding agencies in the sciences. NEH is requesting proposals for projects that take some risks in the pursuit of innovation and excellence. Digital Humanities Start-Up Grants should result in plans, prototypes, or proofs of concept for long-term digital humanities projects prior to implementation. **Due September 11.**

Enduring Questions National Endowment for the Humanities

The NEH Enduring Questions grant program supports faculty members in the preparation of a new course on a fundamental concern of human life as addressed by the humanities. This question-driven course would encourage undergraduates and teachers to join together in a deep and sustained program of reading in order to encounter influential ideas, works, and thinkers over the centuries. **Due September 11.**

NEH/DFG Bilateral Digital Humanities Program

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The National Endowment for the Humanities in the United States and the German Research Foundation (Deutsche Forschungsgemeinschaft e.V., DFG) are working together to offer support for projects that contribute to developing and implementing digital infrastructures and services for humanities research. **Due September 25.**

ONRBAA14-008 Fiscal Year 2015 Non-Lethal Weapons Technologies

The Office of Naval Research is soliciting proposals for: (1) applied non-lethal weapon (NLW) research; (2) early NLW technology development, and (3) rapid NLW development, test, and demonstration of next-generation NLW and capabilities. The objective of this BAA is to stimulate applied research, advanced technology development (ATD), and advanced component development and prototypes (ACD&P) to include rapid-prototyping, testing and evaluation of NLW technologies in an attempt to address known military needs. Refer to the BAA or application instructions for white paper due dates. **Due September 26.**

Interdisciplinary Research in Hazards and Disasters (Hazards SEES)

Hazards SEES is a program involving multiple NSF Directorates and Offices (CISE, ENG, GEO, MPS, OIIA, and SBE) that seeks to: (1) advance understanding of the fundamental processes associated with specific natural hazards and technological hazards linked to natural phenomena, and their interactions; (2) better understand the causes, interdependences, impacts, and cumulative effects of these hazards on individuals, the natural and built environment, and society as a whole; and (3) improve capabilities for forecasting or predicting hazards, mitigating their effects, and enhancing the capacity to respond to and recover from resultant disasters. The overarching goal of Hazards SEES is to catalyze well-integrated interdisciplinary research efforts in hazards-related science and engineering in order to reduce the impact of hazards, enhance the safety of society, and contribute to sustainability.

Hazards SEES seeks research projects that will productively cross the boundaries of the atmospheric and geospace, earth, and ocean sciences; computer and information science (including cyberinfrastructure); engineering; mathematics and statistics; and social, economic, and behavioral sciences. Successful proposals will integrate across multiple disciplines to promote research that advances new paradigms that contribute to creating a society resilient to hazards. Hazards SEES intends to transform hazards and disaster research by fostering the development of interdisciplinary research that allows for appropriately targeted data collection, integration, and management; modeling (including predictive models for real-time decision making); visualization and simulation; data analytics and data-driven discovery; real-time sensing; cross-cutting knowledge development; and synthesis of applicable models and theory. Proposals must demonstrate the inclusion of the appropriate expertise to address the research questions, hypotheses, and problems being posed. **LOI September 26 ; full November 28.**

NPS-BAA-14-002 FY14 Acquisition Research Program Department of Defense

The Government is interested in stimulating and supporting scholarly research in academic disciplines that bear on public policy and management in the field of government acquisition. These include economics, finance, financial management, information systems, organization theory, operations management, human resources management, risk management, and

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marketing, as well as the traditional acquisition areas such as contracting, program/project management, logistics, test and evaluation and systems engineering management. The ARP primarily supports scholarly research through assistance vehicles that will benefit the general public and/or private sector to a larger extent than any direct benefits that may be gained by the Department of Defense (DOD). Studies of government processes, systems, or policies should focus on expanding the body of knowledge, theory and/or research methodologies that are also relevant to processes, systems, or policies outside the DOD. The Government in this BAA is interested only in proposals that will provide unclassified and non-proprietary findings suitable for publication in open scholarly literature. Offerors bear prime responsibility for the design, management, direction, and conduct of research, and exercise judgment and original thought toward attaining the goals within broad parameters of the research areas proposed and the resources provided. **Due September 30.**

NPS-BAA-14-001 FY14 Masint Emerging Technologies Research Program

Research Areas: Measurement and Signature Intelligence (MASINT) is an intelligence discipline that employs a broad range of scientific developments to gather foreign intelligence. In our efforts to enhance this intelligence competency we are interested in stimulating and supporting research that creates new knowledge and capabilities, or the transition of current capabilities, that have the potential to enhance the following areas: Remote assessment and detection of weapons of mass destruction, specifically nuclear and radiological weapons, as well as chemical and biological weapons. Remote assessment and detection of directed energy weapons. This would include all lasers that are primarily designed as weapons as well as high-powered microwave (HPM) and electromagnetic pulse (EMP) weapons.

Bioinformatics, the science of collecting and analyzing complex biological data such as genetic codes, has become an important part of many areas of biology. Research should focus on how this science promotes the extraction of useful results from large amounts of raw data as well as how its intrinsic characteristics are applicable to many related research topics. Telematics typically is any integrated use of telecommunications and informatics, also known as ICT (Information and Communications Technology). Possible telematics applications can track vehicles, trailers, and shipping containers. Telematics is also used for relaying environmental conditions within vehicles, trailers or shipping containers, fleet management, mobile data and mobile television, wireless vehicle safety communications allowing vehicles to communicate with those around it and emergency warning system for vehicles. Navy seeks White Papers only from the most knowledgeable experts and universities in the field, with submissions briefly describing expertise. Note: Proposals for workshops, conferences, and symposia, or for acquisition of technical, engineering and other types of support services will not be considered ([Link to all NPS BAA's](#)). **Due September 30.**

NPS-BAA-14-002 FY14 Acquisition Research Program, Naval Supply Systems Command

The Government is interested in stimulating and supporting scholarly research in academic disciplines that bear on public policy and management in the field of government acquisition. These include economics, finance, financial management, information systems, organization theory, operations management, human resources management, risk management, and

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marketing, as well as the traditional acquisition areas such as contracting, program/project management, logistics, test and evaluation and systems engineering management. The ARP primarily supports scholarly research through assistance vehicles that will benefit the general public and/or private sector to a larger extent than any direct benefits that may be gained by the Department of Defense (DOD). Studies of government processes, systems, or policies should focus on expanding the body of knowledge, theory and/or research methodologies that are also relevant to processes, systems, or policies outside the DOD. The Government in this BAA is interested only in proposals that will provide unclassified and non-proprietary findings suitable for publication in open scholarly literature. Offerors bear prime responsibility for the design, management, direction, and conduct of research, and exercise judgment and original thought toward attaining the goals within broad parameters of the research areas proposed and the resources provided. **Due September 30.**

NSF/DOE Partnership On Advanced Frontiers In Renewable Hydrogen Fuel Production Via Solar Water Splitting Technologies 2014-2016

The Directorate for Engineering at the National Science Foundation (NSF) has established a partnership with the Fuel Cell Technologies (FCT) Office of the U.S. Department of Energy (DOE) in order to address critical fundamental and applied research challenges associated with advanced technologies for the production of hydrogen fuel via solar water splitting processes. The goal of the partnership is to leverage the complementary missions of applied research, development and demonstration (DOE) and use-inspired fundamental research and education (NSF) to address issues of national importance that impact the sustainable production of fuels using renewable resources. The Directorate for Engineering seeks proposals with transformative ideas that meet the detailed requirements delineated in this solicitation. **LOI October 6; full December 11.**

Advanced Technological Education (ATE)

Changes in the ATE program solicitation for FY 2015, FY 2016, and FY 2017 include:

A new focus area for ATE projects called “**ATE-Coordination Networks**” is described. The Targeted Research on Technician Education track has been expanded. This track now supports planning, exploratory research and development, and full scale research and development proposals. All projects must demonstrate substantive faculty partnerships between 2-year and 4-year colleges and universities. Proposals submitted for a Center renewal may submit up to five pages on Results of Prior Support in the supplementary documents section of the proposal, and refer the reader to that section in the Project Description section. The funding duration and size of award for the Centers track has been changed, and resource centers renamed to support centers. Large Scale Material Development projects are no longer supported. An additional requirement is described under “Reporting Requirements”. This is a requirement to work with ATE Central to archive resources developed with grant funds. For proposals describing the development of new learning materials and computer software source code developers are encouraged to license these materials (See text under “Reporting Requirements”).

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With an emphasis on two-year colleges, the Advanced Technological Education (ATE) program focuses on the education of technicians for the high-technology fields that drive our nation's economy. The program involves partnerships between academic institutions and industry to promote improvement in the education of science and engineering technicians at the undergraduate and secondary school levels. The ATE program supports curriculum development; professional development of college faculty and secondary school teachers; career pathways to two-year colleges from secondary schools and from two-year colleges to four-year institutions; and other activities. Another goal is articulation between two-year and four-year programs for K-12 prospective STEM teachers that focus on technological education. The program invites research proposals that advance the knowledge base related to technician education. **Due October 6.**

Centers of Research Excellence in Science and Technology (CREST)

The Centers of Research Excellence in Science and Technology (CREST) program provides support to enhance the research capabilities of minority-serving institutions (MSI) through the establishment of centers that effectively integrate education and research. CREST promotes the development of new knowledge, enhancements of the research productivity of individual faculty, and an expanded presence of students historically underrepresented in science, technology, engineering, and mathematics (STEM) disciplines. HBCU-RISE awards specifically target HBCUs to support the expansion of institutional research capacity as well as the production of doctoral students, especially those from groups underrepresented in STEM, at those institutions. The CREST program supports the following types of projects: CREST Center awards provide multi-year support (typically 5-years) for eligible minority-serving institutions that demonstrate a strong research and education base, a compelling vision for research infrastructure improvement, and a comprehensive plan with the necessary elements to achieve and sustain national competitiveness in a clearly defined area of national significance in science or engineering research. Successful Center proposals will demonstrate a clear vision and synergy with the broad goals of the CREST Program and the Human Resource Development Division with respect to development of a diverse STEM workforce. CREST Centers are expected to provide leadership in the involvement of groups traditionally underrepresented in STEM at all levels (faculty, students, and postdoctoral researchers) within the Center. Centers are required to use either proven or innovative mechanisms to address issues such as recruitment, retention and mentorship of participants from underrepresented groups. [Anticipated number of awards is across fiscal years 2015 and 2016. In fiscal year 2015, up to 2 Broadening Participation Research in STEM Education standard grants, up to 8 SBIR/STTR Diversity Collaborative Supplements, up to 4 Partnership Supplements and up to 4 HBCU-RISE standard grants. In fiscal year 2016, up to 4 CREST Center continuing grants, up to 2 Broadening Participation Research in STEM Education standard grants, up to 8 SBIR/STTR Diversity Collaborative Supplements, up to 3 Partnership Supplements and up to 2 HBCU-RISE standard grants.] **CREST LOI due October 6; CREST preliminary due November 5; and CREST full June 5, 2015.**

W81XWH-14-SCIRP-IIRA DoD Spinal Cord Injury Investigator-Initiated Research Award

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The SCIRP Investigator-Initiated Research Award mechanism was first offered in FY09. Since then, 211 Investigator-Initiated Research Award applications have been received, and 47 have been recommended for funding. The SCIRP Investigator-Initiated Research Award is intended to support studies that have the potential to make an important contribution to SCI research and/or patient care. Important aspects of this award mechanism include: **Impact:** Applications should articulate both the short- and long-term impact of the proposed research. Projects should address an FY14 Area of Encouragement or other research areas relevant to SCI. **Military Relevance:** Projects should impact spinal cord injured military Service Members, Veterans, and/or their family members, as well as their caregivers. All applications must specifically and clearly address the military relevance of the proposed research project. Collaboration with military researchers and clinicians is encouraged. **Preliminary Data:** Observations that drive a research idea may be derived from laboratory discovery, population-based studies, a clinician's first-hand knowledge of patients, or anecdotal data. Applications must include preliminary and/or published data that is relevant to SCI and the proposed research project. Investigator-Initiated Research Award applications may focus on any phase of research from basic through translational, including preclinical studies in animal models or human subjects, as well as correlative studies associated with an existing clinical trial. Clinical trials are not allowed under this funding opportunity. **Due October 30.**

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, metabolomes, 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**

Open Solicitations and BAAs

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[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.**

[Research Interests of the Air Force Office of Scientific Research](#)

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, Funding Opportunity Description. AFOSR is seeking unclassified, white papers and proposals that do not contain proprietary information. We expect our research to be fundamental. **Open until superseded.**

[DARPA Microsystems Technology Office-Wide](#)

The Microsystems Technology Office (MTO) supports DARPA's mission of maintaining technological superiority and preventing technological surprise by investing in areas such as microelectromechanical systems (MEMS), electronics, system architecture, photonics, and biotechnology. In recent years, the proliferation of commercial components and manufacturing processes has allowed our adversaries to achieve capabilities that were previously not possible. **Open to September 1, 2014.**

[NINDS SBIR Technology Transfer \(SBIR-TT \[R43/R44\]\)](#)

This Funding Opportunity Announcement (FOA) encourages Small Business Innovation Research (SBIR) grant applications from small business concerns (SBCs) for projects to transfer technology out of the NIH intramural research labs into the private sector. If selected for SBIR funding, the SBC will be granted a royalty-free, non-exclusive internal research-use license for the term of and within the field of use of the SBIR award to technologies held by NIH with the intent that the SBC will develop the invention into a commercial product to benefit the public. **Open November 5, 2011, to September 8, 2014.**

[Agriculture and Food Research Initiative: Foundational Program National Institute of Food and Agriculture USDA-NIFA-AFRI-004412](#)

The AFRI Foundational Program is offered to support research grants in the six AFRI priority areas to continue building a foundation of knowledge critical for solving current and future societal challenges. The six priority areas are: Plant Health and Production and Plant Products; Animal Health and Production and Animal Products; Food Safety, Nutrition, and Health; Renewable Energy, Natural Resources, and Environment; Agriculture Systems and Technology; and Agriculture Economics and Rural Communities. Single-function Research Projects, multi-

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function Integrated Projects and Food and Agricultural Science Enhancement (FASE) Grants are expected to address one of the Program Area Priorities (see Foundational Program RFA for details). **Open until September 29.**

Long Range Broad Agency Announcement (BAA) for Navy and Marine Corps Science and Technology 14-001 ONRBAA14-001

This [BAA](#) is intended for proposals related to basic research, applied research, or advanced technology development. For NAVY and Marine Corps Science, Technology, Engineering & Mathematics (STEM) programs, refer to ONRBAA13-007, which may be found at the ONR Broad Agency Announcement (BAA) webpage-

<http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx> . 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>. **Open to September 30, 2014.**

NOAA-NFA-NFAPO-2014-2003949 FY 2014 - 2015 Broad Agency Announcement (BAA)

The purpose of this notice is to request applications for special projects and programs associated with NOAA's strategic plan and mission goals, as well as to provide the general public with information and guidelines on how NOAA will select proposals and administer discretionary Federal assistance under this Broad Agency Announcement (BAA). This BAA is a mechanism to encourage research, education and outreach, innovative projects, or sponsorships that are not addressed through our competitive discretionary programs. It is not a mechanism for awarding congressionally directed funds or existing funded awards. Funding for potential projects in this notice is contingent upon the availability of Fiscal Year 2014 and Fiscal Year 2015 appropriations. Applicants are hereby given notice that funds have not yet been appropriated for any potential activities in this notice. Publication of this announcement does not oblige NOAA to review an application, or to award any specific project, or to obligate any available funds. **Open to September 30, 2014.**

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,

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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.**

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.**

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

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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.**

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[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

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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) Soldier/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.

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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

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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:

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- 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.)
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