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By Katherine E. Kelly, PhD

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New Faculty Guide to Competing for Research
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Avoid NSF OIG Audits for Proposal Plagiarism

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By Mike Cronan, co-publisher

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The recently released 38-page NSF Office of Inspector General's <u>Semi-Annual Report</u> to congress is clearly a warning shot across the bow for those who would either intentionally or "inadvertently" engage in research misconduct, plagiarism of proposals, and fiscal malfeasance related to NSF funding. The report gives excellent cautionary examples of the surprisingly lame and disingenuous prevarications PIs have used to excuse what is clearly research misconduct or plagiarism of one kind or another. If not in its entirety then in an abbreviated version, this report should be required reading for anyone involved in research grant writing, particularly as it relates to research misconduct and plagiarism in the writing of the research narrative. The research narrative lies at the heart of funding success. If it is flawed by plagiarism in any way, it is catastrophic for funding of the proposal and typically results in debarment from submitting future proposals to NSF. *Take this report as the mule kick you witness being applied to someone other than yourself, and take it to heart to make sure you don't make the same mistakes*.

Once again, the "poster child" for the most serious offences, i.e., those that resulted in civil and criminal investigations, the latter carrying actual jail time, relates to the management, or more accurately, fiscal mismanagement, of SBIR (Small Business Innovation Research) awards. As in past OIG investigations, SBIR awards seem to be the breeding ground for all sorts of fiscal skullduggery and chicanery, such as wire fraud, mail fraud, falsification of records, and theft by imaginative, but ethically challenged PIs, as they are described in embarrassing detail in this latest report.

It is cold comfort that most of the OIG investigations into faculty, administrators, and graduate students were not for criminal behavior that could result in jail time but nonetheless for career-ending offences related to some form of administrative malfeasance, research misconduct, plagiarism, and other clearly unethical behaviors. For example, the report notes the case of a "PI at a Pennsylvania university that <u>fabricated a document</u> showing his project's required IRB approval, and <u>submitted the fabricated document to NSF</u> as part of his research proposal, which was subsequently awarded. The university returned about \$44,000 that had been expended and voluntarily relinquished the \$1.6 million award."

While some misconduct might not rise to the level of jail time, it sure gets close. Take, for example, the case noted in the report of the NSF investigation revealing that "a professor at a Florida university was paying her husband (who had no science background) for 'helpful suggestions' on her publications resulting from research funded by two NSF awards as well as two Department of Energy (DOE) awards. She claimed that her NSF program officers gave her permission to hire her husband for this purpose, which was not true. We also found that she significantly mischarged student and postdoc salaries on NSF awards.... We presented evidence to the university, which agreed with our findings and returned over \$165,000 for mischarged funds related to student salary. The university also repaid over \$40,000 to NSF and \$50,000 to DOE for award funds used for the professor's husband's salary. In addition, the university issued a reprimand, made the professor ineligible for promotions or salary increases for three

years, required her to complete training on federal effort reporting, and will heavily monitor all aspects of her reporting related to sponsored projects for three years. **The professor resigned her position as department chair**."

It is worth noting that late summer and early fall are times when many university research offices offer workshops and informational seminars to new faculty on all facets of research grant writing. *Including excerpts from this report as a cautionary tale in grant writing presentations would be helpful*, particularly for those involved in writing or contributing to the research narrative of a proposal where there may still be some fuzziness about what constitutes plagiarism at NSF and how that agency seeks to ferret it out in proposals.

As an extreme case, the report notes the example of a "graduate student at a New York university (who) submitted a proposal to NSF to receive funding for research he had already completed and published in an academic journal, using his advisor's data. The proposal was a verbatim copy of the article, except the student changed past-tense verbs to future tense and replaced numerical values with 'x'. A large amount of the text in both was also plagiarized. His advisor stated that the student had not had permission to use the data. The student told his advisor that there were no other instances in which he published...the data. We found that the student had submitted ten more proposals to NSF seeking funds to perform work that had already been completed and submitted to, or published in, academic journals, some of which used the advisor's data. The student's advisor and other faculty resigned from his doctoral committee, prompting a university investigation. The student left the university before the investigation was finished."

In another plagiarism case, the report noted that a "PI from a Puerto Rico university plagiarized material in a funded NSF proposal, which was suspended and subsequently terminated, resulting in over \$150,000 of funds put to better use. As described previously, the PI included plagiarized material in a funded NSF proposal and an unfunded proposal. The PI's university concluded that she committed research misconduct. The PI asserted during the investigation that student assistants prepared portions of the proposal; however, she had no evidence regarding student involvement. The university reprimanded the PI and required that her writing be monitored for three years, that she successfully complete a university course regarding proper citations practices within one year, and that she complete a refresher workshop the following year. Our investigation concluded the PI committed research misconduct by knowingly plagiarizing material in two proposals, constituting a significant departure from accepted practices. We also identified plagiarism in the PI's dissertation. We recommended that NSF require the PI submit certifications and assurances for three years and certify compliance with university-imposed requirements."

One take away here is that **NSF** does not sit back and wait to stumble on plagiarism in a serendipitous way, but actively seeks it out in a very aggressive way. How else to explain that NSF found plagiarism in a new submittal to the agency by finding instances where narrative text was copied from both a proposal already funded by the agency and a proposal already declined by the agency and then went on to identify plagiarism in the Pl's dissertation. This should be a real heads up to anyone that writes or contributes to the writing of the research narrative to be cautious in the extreme in terms of making absolutely sure that the research narrative is original text and not in any way derived in an inappropriate way from any prior

proposal, either funded or unfunded at NSF, or from scientific articles, etc. NSF may not be partnered with NSA, but this report clearly reveals that it has put in place very powerful protocols to search for and identify instances of plagiarism in proposals submitted to that agency.

Another illustrative case in the report serves as a good example related to plagiarism in proposals and a PI's unsuccessful attempts to use *defensive prevarications*. This PI at a Michigan university "submitted an NSF proposal containing three pages of apparently copied text in the proposal's five-page literature review. The PI asserted that he had used the American Psychological Association (APA) citation style, that common language use was coincidence, and that he used the author's words to avoid misinterpretation. We determined the PI's citation practices did not meet APA standards, found his other responses contradictory, and referred the investigation to his institution. The PI asserted that: 1) NSF policies are nuanced and in conflict with his own literal interpretation; 2) NSF's requirements for quotation use conflict with other disciplines' standards; 3) his field is eclectic and not addressed by NSF policy; and 4) the research proposal is not really research. The university refuted all of these assertions and concluded that the PI committed plagiarism, at least recklessly, which was a significant departure from accepted practices. The university required the PI to participate in a supervisory meeting to discuss the seriousness of his actions, identify steps to prevent future occurrences; take training about plagiarism prevention; and submit all grant proposals to a university official for review for two years. Our investigation determined that the PI knew his actions constituted plagiarism, knew NSF proposals required attention to citation, and was not unfamiliar with the grant writing process. Consequently, we determined he acted knowingly. We recommended that NSF require the PI submit certifications and assurances for two years, and certify compliance with university-imposed requirements."

Finally, in another case, NSF noted that an "assistant professor in Alabama submitted an NSF proposal in which most of the first page, as well as a few other paragraphs, were apparently copied from other sources. She stated she copied and pasted text from her source documents without any notation into the same computer document where she was also composing original text for the proposal—over months of composition, this practice led to her inability to distinguish copied from original text. The university determined that she recklessly plagiarized and terminated her employment. We agreed with the university's conclusions and recommended that NSF require certifications for one year."

The take away from all of these examples is that *NSF pays very close attention to and aggressively searches out and punishes cases of plagiarism in the proposal narrative*. While offenders won't do jail time for plagiarism as they would in fiscal mismanagement of SBIR awards, NSF may debar them, as in the case of these examples, from submitting proposals to NSF for a number of years and may impose more years of subsequent certifications and assurances that require institutional oversight and monitoring of their proposals for plagiarism and misconduct after the debarment period. This is not good for a PI, and for untenured faculty, sanctions such as debarment and imposed certifications are most likely career-ending events. Moreover, it is a preventable outcome. *Taking the time to understand this report is a small price to pay for avoiding the pitfalls of research misconduct*.

Gaining a Competitive Advantage at NSF

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By Mike Cronan, co-publisher

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NSF's June release of the 21-page Strategic Framework for Investments in Graduate Education FY 2016-FY 2020 offers a wealth of information that can be used to write more competitive and successful proposals to that agency. The purpose of the report is to state the agency's goals in supporting graduate education, "and to formulate a set of strategic objectives that describe the ways that NSF plans to meet those goals." This latter reference to strategic objectives is key to those who take the time to ferret out of the report the critical role NSF sees for graduate STEM education in our national scientific and technological enterprise.

This report has its origins in the Federal Science, Technology, Engineering, and Mathematics (STEM) Education <u>5-Year Strategic Plan</u> (May 2013) by the Committee on STEM Education National Science and Technology Council and <u>The Path Forward</u>: The Future of Graduate Education in the United States (Council of Graduate Schools and Educational Testing Service, 2010).

The key point here is that *this report offers an insight into NSF's thinking* on graduate education that goes well beyond specific graduate education programmatic opportunities, e.g., fellowships and traineeships. The report's content is relevant to all of the agency's major research and center solicitations where graduate education plays a role and where the broader impacts or educational components of the research impact the overall competitiveness of the proposal. The key elements of this report for those who plan, develop, and write proposals to that agency or assist those who do relate to *NSF continuously pushing the boundaries of STEM education models to make them more efficient, successful, scalable, and replicable*.

This is important to keep in mind when writing proposals to NSF, especially larger proposals and centers (e.g., the ERC and STC competitions or the current MRSEC) with multiple research, education, training, and broader impacts components that must be *contextually integrated in a logical way within the research narrative*. NSF best practices in STEM education and diversity at the graduate level have transformed themselves multiple times since the early 1990s; consequently, competitive graduate training models from that time are no longer competitive components of proposals today.

Today's NSF expectations for graduate education models is that they "should prepare graduate students to tackle complex challenges from a broad array of professional settings in a diverse, knowledge-based, and innovation-driven economy. Graduate education and training should also prepare students for the changing nature of the conduct of science (e.g., multidisciplinary training, international perspectives) within the tradition of scholarship that is core to graduate training, as well as for diverse career paths in R&D including academia, the private sector, government and science policy. A strong **evidence base** of programs and practices is vital to meeting these broad objectives."

While this is addressed in more detail in the report, the importance of proposing graduate education models based on current best practices is an essential component of many NSF research proposals. When writing a research narrative requiring a graduate education component, the wise author will take the time to read the key literature, such as this report, so

that they can propose the models that NSF favors. After all, as one NSF program officer famously noted, "you don't want to propose reinventing the flat tire."

The scale of NSF's support of graduate education tells you something about its importance, or, as the agency notes, "the majority of NSF's investments in graduate students come through faculty research grants that support research assistants, although NSF directorates have instituted several additional programs to support graduate students, ranging from dissertation completion awards to traineeship and fellowship mechanisms that advance the progress of science and engineering for the nation." NSF invests roughly \$1 billion dollars annually in graduate education in support of over 40,000 students. Approximately 60% of these funds are applied to research assistantships that contribute to the research objectives of NSF-funded awards. Graduate fellowships that recognize and support promising students comprise about 36% of the NSF investment in graduate education.

The report's framework then presents three goals that serve as the foundation of the NSF investments in graduate education, along with a set of strategic objectives for these investments. It is worth noting that requests by faculty writing grants for NSF centers frequently include support from research offices on educational components. This report sheds a great deal of light on this topic by clearly addressing NSF expectations for new models of graduate education going forward.

Specifically, as noted in the report and quoted here, the three core goals and the five core objectives of NSF investments in graduate education are:

- "Advance Science and Engineering Research: Support graduate students and graduate education to enable long-term contributions of new knowledge at the frontiers of science and engineering.
- Broaden Participation to Promote Excellence in Research and Build the Next Generation STEM Workforce: Recruit graduate students from a variety of geographic, demographic, social, and educational backgrounds to promote the advancement of science and a highly qualified professional workforce.
- Build Effective Models of Graduate Education and Workforce Development: Support the development and use of innovative models and evidence based approaches in graduate education, including education and research about promising practices and program effectiveness."

The following five strategic objectives demonstrate how NSF will advance these goals over the next five years, as quoted from the report.

- "Advance Science and Engineering Research
 o Objective 1: Prepare the Discoverers of Tomorrow
- Broaden Participation to Promote Excellence in Research and Build the Next Generation STEM Workforce
 - o Objective 1: Invest in Broad Research and Education Experiences o Objective 2: Support Research on Cultivating Diverse and Effective Science Teams
- Build Effective Models of Graduate Education and Workforce Development
 Objective 1: Convene a National Dialogue on S&E Graduate Education
 Objective 2: Enhance What NSF Knows About Investments in S&E Graduate Education

This report is sufficiently detailed to serve as a checklist for those writing the graduate education narrative component of a larger research grant. It would be prudent to compare what you propose to the NSF goals and objectives for graduate education above, as well as the more detailed discussions within the report to make sure you are fully responding to NSF's current thinking on the *best evidence-based practices for graduate STEM education*.

Blue Sky Proposals are not Fundable

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By Mike Cronan, co-publisher

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Composer Irving Berlin's 1926 song *Blue Skies* has been immortalized by a roster of iconic singers, from Ella Fitzgerald and Dinah Washington to Willie Nelson and Lyle Lovett. The lyrics "*Blue skies smiling at me/ Nothing but blue skies do I see... Never saw the sun shining so bright/ Never saw things going so right"* are about seeing the world through the lens of having fallen in love. While *Blue Skies* is considered an all time great song, *do not sing this tune to program officers or reviewers*. If you do, they will definitely not be falling in love with your proposed research but rather responding with their own song, which most likely will be a "*reviewer's dirge*," a somber song of lament declining to fund your proposal.

"Blue Sky" proposals, commonly known as "Trust Me" proposals by agency program officers and reviewers, have more in common with political stump speeches than they do with skilled grant writing. *They are long on vision and short on facts*. By analogy, it is the difference between Israel Kamakawiwo'ole singing *Over the Rainbow* and LAPD detective Sergeant Joe Friday's famous catchphrase "*Just the facts, ma'am*" immortalized on *Dragnet* in the 1950s. *A* "*trust me" proposal is essentially a vision statement run amuck*. It is a repetitive restatement that promises an idyllic outcome devoid of validating facts, rationale, and a stepwise description of <u>exactly how</u> the visionary outcome will be accomplished. It is the research equivalent of "*free beer and wide roads*," without a roadmap of how to get to this promised land. The basic request of a "trust me" proposals is "*give me the money and I will figure it out. Trust me*!"

A case in point: in 1989-90, following reports by electrochemists Martin Fleischmann and Stanley Pons that their experimental results showed excessive heat in heavy water explainable only in terms of nuclear processes *led to a proliferation of the ultimate "trust me" proposals—cold fusion*. Cold fusion is an example of what some call pathological science—basically, *blue sky wishful thinking*. Unfortunately, significant funding for proposals, on the order of hundreds of millions of dollars, was committed in the rush to validate cold fusion, which never happened. The key point, in this extreme case, is that *cold fusion was a trust me promise absent the how to experimental protocol*. This resulted in either failed attempts at replication or positive results that were later retracted by several major university research teams.

Bottom line: The successful proposal narrative is all about balance. It is not just a description of vision or procedure but a thoughtful balance of many key narrative components. Research narratives are guided by an overall vision, but that vision is only validated in the minds of program officers and reviewers if it is made clear **how that vision will be achieved**, including clearly stated goals and objectives, rationale, significance, possible barriers, research protocols, performance timelines—the core narrative sections that explain what you will do, how you will do it, why you will do it, and its significance and impact to the agency mission or disciplinary field.

Unfortunately, it is surprising *how many proposal narratives are out of balance*, and how many proposals *confuse a vision statement with a "how to" statement* or believe a vision

Proposal narratives that devote too much space to what you will do and too little space to how you will do it likely will not be funded. After all, proposals recommended for funding have convinced reviewers that you not only have a vision for significant research but have a plan for achieving it, and have gained the reviewers' trust that you have the capacity to perform. That requires a well-balanced and skillfully reasoned research narrative. This is a good reason to always ask a colleague or a research office professional to read your proposal and offer comments.

In reviewing a narrative draft, the tell tale sign of a proposal that overemphasizes the blue sky vision and underemphasizes the explanation of how that vision will be achieved is the reader's nagging sense that details and specific steps describing the movement from Point A (vision) to Point E (vision outcomes) are missing. These enumerated and detailed steps are the hard part of writing a successful research narrative, or, as architect Mies van der Rohe claimed, "God is in the details." When these intervening, detailed steps are missing, the reader will likely get the sensation that they got from Point A to Point E on a Star Trek Transporter, but with no knowledge, understanding, or memory of the intervening states, nor, most importantly, a clear understanding of what the applicant proposes to do and how. Confusing reviewers about what you actually will do is not a good thing!

Basic Grant Writing Training Presentation

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By Mike Cronan, co-publisher

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While the principal focus of university research offices is to support faculty in the planning, development, and writing of research grants to federal agencies, in many instances, nonfaculty professional staff in various nonresearch offices are also called upon to write proposals. These proposal often serve university offices that depend to various degrees on "soft money" for both staff and programmatic support, e.g., for extension services, educational outreach partnerships, on-campus summer enrichment programs, and a host of others.

Furthermore, students, particularly graduate students and new postdocs, can often benefit from basic grant writing training since it prepares them to write the narrative section of applications for graduate fellowships and to take a support role on faculty research grants, not to mention to assume positions in academia and industry where grant writing will be an important element in career advancement.

Moreover, it is not unusual for various community organizations and centers, municipal agencies, school districts, science museums, city and county food banks, nongovernmental support services, etc. to write proposals to secure funding for their community mission activities. In this case, it is not uncommon for someone in a university research office to volunteer to provide "pro bono" grant writing advice and assistance to these organizations, or do so as part of a university commitment to community service partnerships and relations.

In these cases, you have a somewhat different audience for introductory grant writing training than the training typically provided to new faculty each fall. For this nonfaculty audience, either within or outside the university, writing grants will be an occasional part of their job duties on an intermittent basis as the need and opportunities arise. The "CAREER-like" strategic planning approach to grant writing presentations for new and tenure-track faculty is not appropriate for this audience. They need a "nuts and bolts" presentation on grant writing basics that emphasizes generic best practices and identifies pitfalls.

Moreover, while faculty grant training may take the form of a one- to three-day research retreat, or form part of a half-day or all-day grant training presentation on a specific agency, almost always including NSF and NIH, or a specific program, almost always including an NSF CAREER workshop, this audience needs something like a one-hour PowerPoint presentation, perhaps followed by a half hour, moderated FAQ discussion, on basic grant writing for nonresearch, nonfaculty professionals. The goal here is to offer a primarily nonresearch audience an abbreviated, jump start into the grant writing process.

Many staff members in a research office could give such a presentation on a moment's notice, somewhat like the old circuit riders who traveled around on horseback serving rural areas in the mid to late 1800s. In today's vernacular, it might be called the "Basic Grant Writing Elevator Speech," targeting professional practitioners of all sorts.

The question for this nonfaculty, nonresearch audience becomes "what key informational topics on grant writing need to be addressed and done so within a one-hour presentation?" While these topics will differ somewhat by institution and audience, in most cases they will include some key "nuts and bolts" perspectives on writing a successful grant.

An example set of topics might include:

- Finding funding
- Understanding the funding solicitation
- Funding agency mission
- Proposal review process
- Writing well

With these five "nuts and bolts" topics in mind, the issue then becomes how to best address each topic in an average of 12 minutes. The below observations by topic offer a starting point to that process, but they are in no way exhaustive. Keep in mind that your presentation can serve as a training tool, so make sure to embed sufficient hotlinks in the presentation to make it useful afterwards as a guided tour to deeper exploration.

Finding Funding

This is fairly straightforward information to convey to anyone submitting a proposal to a federal agency. **One word**: <u>Grants.gov</u>. All new federal agency funding opportunities are posted on a daily basis to this site. In most cases, the funding notice will also be posted to the agency website, and in some cases, duplicate postings will be found at <u>FedConnect</u>, <u>FedBizOps</u>, and the <u>Federal Register</u>. Most agencies are set up to send out funding alerts by email or RSS subscriptions.

However, many in this type of audience will be looking for funding from foundations at a national, regional, or local level. This may take some digging to find the right funding source(s). The <u>Foundation Center</u> and places like <u>GrantsWatch</u> are starting points for this process. However, a simple Google search often turns up good starting places for finding foundation funding, e.g., do a Google search on "foundations that fund [enter your topic]." Once possible foundations are identified, search the foundation website to see whether you are a fit for their funding mission and review instructions on how to submit a proposal to that foundation.

Bottom line: when it comes to finding funding outside of the domain of federal agencies and foundations, *Google becomes your best friend*. Crafting Google funding queries is a good skill to develop to find lesser-known funders. After all, the most valuable time frame in grant writing begins on the date a solicitation is published and ends at the proposal due date. Tracking funding in real time is key to success.

Understanding the funding solicitation (aka RFP, FOA, etc.)

The important point to make here is that a careless or uninformed reading of the funding solicitation is the most common mistake made that leads to a declined proposal. Great care must be taken to ensure the proposal narrative responds fully to the funder's goals, objectives, and review criteria . A solicitation tells you all you need to know about submitting a proposal in response to a specific funding opportunity at an agency. Solicitations describe or reference such key information as the goals and objectives of the funding opportunity, proposal organization, topics and questions the applicant must address in the proposal, review criteria, and procedural questions related to eligibility, budgets, due dates, contact information for program offices, and related information. Several key points need to be emphasized when it comes to the funding solicitation, specifically what it is and what it is not:

- It is a *non-negotiable* listing of performance expectations reflecting the mission, goals, and research objectives of the funding agency.
- It is not a research smorgasbord offering a choice to address some topics but not others, depending on the applicant's interest; nor can only some review criteria be addressed and others ignored.
- Agencies do not fund good ideas.
- Agencies fund good ideas that advance their mission and investment priorities.

Think of the funding solicitation as a treasure map. It is a step by step set of instructions that lead to funding success. Read it and read it again. Know it well and you will be successful.

The funding agency mission

All funding agencies have a mission, or a reason for funding specific activities of interest to the agency. Understanding the mission of the funding agency is key to success because all successful proposals have one common characteristic: **the proposal makes a strong and compelling case that the proposed activities will bring value-added benefits to the agency's mission**. That case cannot be made in a convincing way unless the person(s) who writes the proposal understands the agency's mission and investment priorities.

The proposal review process

Always write to your audience. Your audience for a proposal will be the program officers and reviewers. In some cases, they may be experts in your field; in other cases, they may be technically literate reviewers but not experts. Funding solicitations give information on the review process as well as describe the review criteria that will be used to judge the merits of the proposal. If this information is not given in the funding solicitation, it will be referenced in the solicitation with a URL to the agency website where it will appear in a more detailed way. It is important to locate and understand this information before you start writing the proposal. Understanding the review criteria and review process will influence how you write the proposal narrative, since the enumerated criteria will have to be clearly addressed in the proposal. Most federal funding agencies and many foundations provide very detailed information on their website about the review process.

Moreover, an important part of understanding the review process is understanding how the funding decision will be made, particularly the role of the program officer in the process. In some cases, reviewed proposals receive a numerical score that ranks them against all other proposals submitted to the competition and the program officer(s) fund by rank order. In others cases, the reviews are advisory only and the program officer(s) make the final determination on which proposals are funded in any given competition. In this latter case, other factors that influence a funding decision may be the geographic distribution of the awards, how well the proposed activities map to the funding agency mission priorities, or whether the proposed activities have been sufficiently funded in the past to preclude a continued agency investment in the particular topic area.

If in doubt about how your proposal will be reviewed, call the program officer and ask. In successful grant writing, timidity is never rewarded and ambiguity is always punished. If

there is any ambiguity in how you understand the review process, or for that matter, how you understand the objectives of the funding opportunity, call and ask a program officer.

Writing Well

Reviewers often comment on how well a proposal is written, and more commonly comment on how poorly a proposal is written with such comments as "it is not clear what the proposer intends to do," or "the goals and objectives are vague and general and lack specifics," or "this proposal is confusing," etc.. A poorly written and poorly organized proposal makes it difficult for program officers and reviewers to determine the merit of the proposal. It leaves them guessing at what you intend to do. Funding agencies are not in the business of buying the equivalent of a lotto ticket and funding a proposal on the off chance that it might accomplish something of significance and importance to the agency. One thing is certain, if a proposal is challenging to read, it will not be read in anything more than a quick and perfunctory way. *More to the point--it will not be funded*. Reviewers will assume that sloppy errors in language, grammar, and spelling will translate into sloppy research, something they will not fund.

Moreover, it is important to understand that *proposal organization is an important part of writing well*. Whenever possible, organize you proposal narrative to reflect the funding solicitation in terms of order and in terms of the questions you address as given in the funding solicitation. A good strategy is to use the funding solicitation as a narrative template to make sure you fully respond to all questions asked by the funder and that you do so in the order asked, which will be the order the reviewers will be looking for then reading your proposal. Format your proposal to make it easy to read, e.g., through the use of white space, bullets, readable font sizes, manageable paragraphs, etc. Finally, reviewers respond best to details and specifics, and not so well to vague generalities. Get to the point quickly. Tell reviewers in an introductory paragraph what you propose to do, why you propose to do it, how you will do it, your rationale for doing it, why you have the expertise to do it, your anticipated outcomes, and the value-added benefits of your proposed activities to the agency's mission priorities.

If nonfaculty grant seekers at your university or in your university community need a starting point for learning how to write a successful grant to a federal or state agency, foundation, corporate sponsor, of any other funder, the above information can be the starting point of a one-hour presentation that will help them jump start that process.

Research Grant Writing Web Resources

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SERDP & ESTCP Webinar Series

SERDP and ESTCP have launched a webinar series to promote the transfer of innovative, cost-effective and sustainable solutions developed through projects funded in five program areas. The webinar series targets Department of Defense and Department of Energy practitioners, the regulatory community and environmental researchers with the goal of providing cutting edge and practical information that is easily accessible at no cost. Live webinars will be held every two weeks on Thursdays from 12:00 PM ET (9:00 AM PT) to 1:30 PM ET (10:30 AM PT). Most webinars will feature two 30-minute presentations and interactive Q&A sessions. Here is the upcoming webinar schedule. Archived presentations (slides and audio) from past webinars are available as well.

USDA/NIFA Antimicrobial Resistance - Stakeholder Webinar

As part of this effort the USDA's National Institute of Food and Agriculture (NIFA), Agricultural Research Service (ARS), and Office of the Chief Scientist will host a stakeholder webinar on **July 19 from 11:30 a.m. to 2:30 p.m. Eastern time** to discuss, prioritize, and develop strategies to help meet the most pressing animal health research education and extension needs related to AMR. Registration for the webinar will open 4-6 weeks prior to the event. Registration is on a first-come, first-serve basis, and slots are limited. Whenever possible, we ask that multiple participants at the same location register only once and join the webinar as a group to accommodate the maximum number of participants. Register now.

USDA/NIFA Capacity Study Webinars

This is a follow-up announcement to our message of June 16 regarding our Capacity Study webinars. This follow up includes a reminder for today's webinar and additional information. **Background:** The National Institute of Food and Agriculture's (NIFA) Capacity Programs represents **nearly half of NIFA's budget**. It is, therefore, imperative for us, in collaboration with our partners, to develop an evidence-based analysis of the value and return on investment of these programs.

Your engagement in the data collection discussion is a key to making the evaluation a success. We need to hear your feedback and concerns. Most importantly, this effort will enable all of us to showcase to the taxpayers and the public the amazing impacts these programs make on the food, agriculture, natural resources, and human sciences enterprise in our nation. The evaluation is to be undertaken by a contractor, TEConomy, in collaboration with the Association of Public and Land-Grant Universities. They will engage you as the study moves forward.

The goals of the webinar offered by NIFA staff are to:

- introduce the intended goals and outcomes of the evaluation;
- answer questions from you and/or your constituents;
- determine who is best suited to complete the ultimate evaluation instruments; and
- brainstorm ways to reduce burden on respondents.

Additional Information:

Recorded Webinar -- The <u>June 30 webinar</u> is available on the NIFA website. Please share this with others.

Educational Grant Writing Web Resources

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NSF 2016 Video Showcase

Making Is Fun but Are They Learning?: Equity in Science Education Investigating STEM Literacies in Makerspaces

What Works Clearinghouse

The goal of the WWC is to be a resource for informed education decision making. To reach this goal, the WWC identifies studies that provide credible and reliable evidence of the effectiveness of a given practice, program, or policy (referred to as "interventions"), and disseminates summary information and free reports on the WWC website. With over 700 publications available and more than 11,500 reviewed studies in the online searchable database, the WWC aims to inform researchers, educators, and policymakers as they work toward improving education for students.

Distance Learning Dataset Training

The <u>National Center for Education Statistics</u> (NCES) is pleased to introduce you to our <u>Distance Learning Dataset Training</u> (DLDT) system. The DLDT computer-based training module resource is an online, interactive tool that allows users to learn about NCES data across the education spectrum and evaluate it for suitability for particular research, policy, teaching, and other purposes. NCES data are appropriate for use by researchers, students, policy specialists, education professionals and anyone who is interested in student and school outcomes at all levels. To help users conduct successful analyses and make appropriate use of NCES data, the DLDT is designed to introduce users to the intricacies of various NCES datasets including their designs, what the data represent, how the data were collected, and specific considerations for analysis.

The DLDT is also a teaching tool that can be used by individuals both in and out of the classroom to learn about NCES complex sample survey and administrative data collections and appropriate analysis methods. There are two types of NCES DLDT modules available: common modules and dataset-specific modules. The common modules help users broadly understand NCES data across the education spectrum, introduce complex sample survey methods, and explain how to acquire NCES micro-data. The dataset-specific modules introduce and educate users about particular datasets. Access the DLDT system and learn more about the NCES datasets at: http://nces.ed.gov/training/datauser/. You can also read more about the modules in our latest blog: http://nces.ed.gov/blogs/nces/post/learning-to-use-the-data-online-dataset-training-modules

Envisioning the Future of the Maker Movement - A Summit Report

This two-day event -- convened by the American Society for Engineering Education in response to a White House Call to Action -- sought to forge connections across the Maker Movement, envision the future of Making for engineering and education communities, and identify how

Makerspaces can be designed to foster inclusiveness and broaden participation in the movement.

The Promise of the Maker Movement for Education

The Maker Movement is a community of hobbyists, tinkerers, engineers, hackers, and artists who creatively design and build projects for both playful and useful ends. There is growing interest among educators in bringing making into K-12 education to enhance opportunities to engage in the practices of engineering, specifically, and STEM more broadly. This article describes three elements of the Maker Movement, and associated research needs, necessary to understand its promise for education: 1) digital tools, including rapid prototyping tools and low-cost microcontroller platforms, that characterize many making projects; 2) community infrastructure, including online resources and in-person spaces and events; and 3) the maker mindset, aesthetic principles, and habits of mind that are commonplace within the community. It further outlines how the practices of making align with research on beneficial learning environments.

The Maker Movement in Education

In this essay, Erica Halverson and Kimberly Sheridan provide the context for research on the maker movement as they consider the emerging role of making in education. The authors describe the theoretical roots of the movement and draw connections to related research on formal and informal education. They present points of tension between making and formal education practices as they come into contact with one another, exploring whether the newness attributed to the maker movement is really all that new and reflecting on its potential pedagogical impacts on teaching and learning.

Learning in the Making: A Comparative Case Study of Three Makerspaces

Through a comparative case study, Sheridan and colleagues explore how makerspaces may function as learning environments. Drawing on field observations, interviews, and analysis of artifacts, videos, and other documents, the authors describe features of three makerspaces and how participants learn and develop through complex design and making practices. They describe how the makerspaces help individuals identify problems, build models, learn and apply skills, revise ideas, and share new knowledge with others. The authors conclude with a discussion of the implications of their findings for this emergent field.

Making as a Strategy for Afterschool STEM Learning: Report from the California Tinkering Afterschool Network Research-Practice Partnership

This report summarizes findings from the California Tinkering Afterschool Network, a research-practice partnership with STEM researchers and informal educators to co-investigate STEM-rich making in afterschool programs serving young people from communities historically underrepresented in STEM. The three-year study identified key dimensions related to (1) How STEM-Rich Making advances afterschool programmatic goals related to socio-emotional and intellectual growth for youth; (2) Key characteristics of programs that effectively engage youth historically marginalized in STEM fields; and (3) Staff development needs to support equity-oriented STEM-Rich Making programs.

Agency Research News

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On July 25, 2016, the National Science Foundation (NSF) will release updates to FastLane that may impact the way you work. NSF continues to focus on the automated compliance checks of proposals in order to decrease the burden on both the research community and NSF staff. Effective July 25, 2016, all proposals will be subject to a new series of automated compliance validation checks to ensure proposals comply with requirements outlined in Chapter II.C.2. of the *Proposal and Award Policies and Procedures Guide* (PAPPG).

The new set of automated compliance checks will trigger error messages for each of the following rules:

- o Biographical Sketch(es) and Current and Pending Support files are required for each Senior Personnel associated with a proposal; and
- o Biographical Sketch(es) can only be uploaded as a file, must not exceed two pages and can no longer be entered as text.

Note About Proposal File Update (PFU): Proposers should be aware should that if a proposal was received prior to July 25 and contained only one Biographical Sketch and/or Current & Pending Support file (rather than individual files for each senior personnel), a PFU addressing any section of the proposal will result in the proposal not being accepted if it does not comply with these new compliance checks. The checks will be run on all sections of the proposal regardless of which section was updated during the PFU.

Note About Grants.gov: Proposers should also be aware that Grants.gov will allow a proposal to be submitted, even if it does not comply with these proposal preparation requirements. Should NSF receive a proposal from Grants.gov that is not compliant, it will be returned without review. Please note that the new set of compliance checks are in addition to the compliance checks that currently exist in FastLane. You can view a complete list of FastLane auto-compliance checks, including these checks, by clicking here. The list specifies which checks are run depending on funding opportunity type (GPG, Program Description, Program Announcement, or Program Solicitation) and type of proposal (Research, RAPID, EAGER, Ideas Lab, Conference, Equipment, International Travel, Facility/Center, or Fellowship). It also specifies whether the check triggers a "warning" or error" message for non-compliant proposals. We encourage you to share this information with your colleagues. For system-related questions, please contact the NSF Help Desk at 1-800-381-1532 or Rgov@nsf.gov. Policy-related questions should be directed to policy@nsf.gov.

Dear Colleague Letter: Change Makers

The Directorate for Education and Human Resources (EHR) at NSF invites innovative research and development proposals to advance STEM learning, while exploring solutions to multidisciplinary or transdisciplinary global challenges in either formal or informal settings for learners of all ages and prior educational experience, including learners traditionally underrepresented in STEM. Research and development efforts should contribute to both the STEM and STEM education knowledge bases. Example topics include:

- academic civic engagement or research opportunities for low-income students to work on increasing the availability of fresh vegetables or potable water locally or internationally;
- creation of a network of course-based research experiences to inform STEM policy work;
- novel use of social media and flash mob strategies to initiate community Change Maker teams;
- crowd-sourced solutions to clean energy challenge through global, public participation in science.

Research and development projects creating toolkits, micro-credential systems, or other resources that will enable learners to identify and collaboratively work on problems of personal interest are welcome. Investigators are encouraged to share learning environments that result from this work as digital, open education resources for the community.

Mechanisms of Support: Proposers are invited to submit their proposals to one of the following programs, in accordance with program solicitation requirements. Regardless of program, the title of each proposal should begin with "Change Makers":

- For informal learning environments, submit to the Advancing Informal STEM Learning program (AISL, NSF 15-593), due November 8, 2016.
- For PreK-12 learning environments, submit to the Discovery Research PreK-12 program (DRK-12, NSF 15-592), due December 5, 2016
- For undergraduate learning environments, submit to the Improving Undergraduate
 STEM Education: Education and Human Resources program (IUSE: EHR, <u>NSF 15-585</u>),
 due November 2, 2016 for Exploration and Design Tier for Engaged Student Learning &
 Institution and Community Transformation proposals and January 11, 2017 for
 Development and Implementation Tiers for Engaged Student Learning & Institution and
 Community Transformation proposals.
- For further guidance on identifying an appropriate program for Change Maker proposals, contact changemakers@nsf.gov.

Questions should be addressed to: changemakers@nsf.gov. This DCL is expected to be in effect from June 15, 2016 through March 1, 2017. All proposals should be submitted by in accordance with individual program deadlines.

<u>Dear Colleague Letter - Exploratory Research on High-Efficiency, Monolithic, Two Dissimilar</u> <u>Materials (TDM) Photovoltaics</u>

With this Dear Colleague letter (DCL), the Division of Electrical, Communications and Cyber Systems (ECCS) within Engineering Directorate of the National Science Foundation (NSF) announces its interest in receiving EArly-Concept Grants for Exploratory Research (EAGER) proposals aimed to enable solar cells with energy conversion efficiency reaching 30% and beyond.

In recent years, costs of solar photovoltaic energy production systems have decreased significantly. Since the launch of the SunShot initiative by the Department of Energy in 2011, cost of solar electricity has dropped by as much as 66% and the industry is approximately 70% of the way to meeting the SunShot 2020 goals. As such, large reductions in solar photovoltaic (PV) cell costs remain a major technological opportunity. Clearly, the reduction of solar cell

costs can be achieved by increasing the energy conversion efficiency of solar cells and/or reducing the processing and material costs.

The emergence of new high bandgap solar cell material such as organic/inorganic hybrid perovskites holds the potential to achieve energy conversion efficiency beyond 30% with the possibility of low manufacturing costs. In recent years, the energy conversion efficiency of perovskite solar cells has risen to 22.1%1,2. However, significant challenges in materials and devices still exist to fully realize the potential of perovskites solar cells. These challenges include the stability of perovskites solar cell, the need for the replacement of Lead, cost-effective manufacturing processes, as well as the design and integration of devices.

The purpose of this DCL is to support innovative, exploratory research in materials, fabrication processes, device structure and integration of monolithic, TDM solar cells to achieve energy conversion efficiency beyond 30% at one SUN with cost-effective manufacturability.

This DCL seeks to support novel and exploratory fundamental research to enable major advances in high-efficiency, monolithic, TDM solar cells including but not limited to perovskites material. Proposed research directions should be amenable to cost effective manufacturability. To achieve this goal, critical research challenges must be addressed.

These challenges include but not limited to:

- Explorations of Lead-free perovskites and other environmentally-benign materials with phase stability;
- Novel material design, for band gap tuning;
- Innovative material and device structures to build a monolithic solar cell with energy conversion efficiency beyond 30% in a two-junction architecture;
- Novel interconnect approaches with structural characterization to meet the currentmatching requirement in the monolithic TDM solar cells;
- Low-cost film deposition and manufacturing processes to achieve high-efficiency monolithic TDM solar cells.

EAGER proposals responding to this Dear Colleague Letter must be submitted by **September 30th, 2016**, **5:00 p.m.**, submitter's local time, via Fastlane or Grants.gov following NSF's Grant Proposal Guide (GPG) (Chapter II.D.2) instructions, and should clearly indicate the reason that the proposed work would be appropriate for EAGER support.

Dear Colleague Letter: NSF/NSFC Joint Research on Environmental Sustainability Challenges

The NSF Engineering Directorate (ENG) and the National Natural Science Foundation of China (NSFC) Department of Engineering and Material Sciences (DEMS) are partnering to encourage joint research by U.S. - China teams collaborating on fundamental research that addresses critical environmental sustainability challenges. The U.S. and China have the two largest economies on Earth and also have important engineering, technology, business and trade relationships with each other. Both nations face significant environmental sustainability challenges, for example in water and energy, urban sustainability, and manufacturing. Fundamental research is needed to provide the foundational knowledge for addressing these challenges. This call is for research proposals from joint U.S. - China teams in two environmental sustainability topic areas: Topic 1. Combustion Related to Sustainable Energy; Topic 2. Urban Water Sustainability.

<u>Forum on Proposed Revisions to ABET Engineering Accreditation Commission General Criteria on Student Outcomes and Curriculum (Criteria 3 and 5):</u>

A Workshop Summary (2016)

Agency Reports, Workshops & Research Roadmaps

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<u>Using Graywater and Stormwater to Enhance Local Water Supplies: An Assessment of Risks,</u> Costs, and Benefits

Chronic and episodic water shortages are becoming common in many regions of the United States, and population growth in water-scarce regions further compounds the challenges. Increasingly, alternative water sources such as graywater-untreated wastewater that does not include water from the toilet but generally includes water from bathroom sinks, showers, bathtubs, clothes washers, and laundry sinks- and stormwater-water from rainfall or snow that can be measured downstream in a pipe, culvert, or stream shortly after the precipitation event-are being viewed as resources to supplement scarce water supplies rather than as waste to be discharged as rapidly as possible. Graywater and stormwater can serve a range of non-potable uses, including irrigation, toilet flushing, washing, and cooling, although treatment may be needed. Stormwater may also be used to recharge groundwater, which may ultimately be tapped for potable use. In addition to providing additional sources of local water supply, harvesting stormwater has many potential benefits, including energy savings, pollution prevention, and reducing the impacts of urban development on urban streams. Similarly, the reuse of graywater can enhance water supply reliability and extend the capacity of existing wastewater systems in growing cities.

Despite the benefits of using local alternative water sources to address water demands, many questions remain that have limited the broader application of graywater and stormwater capture and use. In particular, limited information is available on the costs, benefits, and risks of these projects, and beyond the simplest applications many state and local public health agencies have not developed regulatory frameworks for full use of these local water resources.

To address these issues, *Using Graywater and Stormwater to Enhance Local Water Supplies* analyzes the risks, costs, and benefits on various uses of graywater and stormwater. This report examines technical, economic, regulatory, and social issues associated with graywater and stormwater capture for a range of uses, including non-potable urban uses, irrigation, and groundwater recharge. *Using Graywater and Stormwater to Enhance Local Water Supplies* considers the quality and suitability of water for reuse, treatment and storage technologies, and human health and environmental risks of water reuse. The findings and recommendations of this report will be valuable for water managers, citizens of states under a current drought, and local and state health and environmental agencies.

<u>Social Responsibility: A Preliminary Inquiry into the Perspectives of Scientists, Engineers and</u> Health Professionals

The notion that scientists have a responsibility to society that goes beyond their responsibilities to the profession is long-standing. Yet, there is no consensus on what the content and scope of social responsibilities are or ought to be. While there is a growing literature concerning the issues encapsulated by the phrase "social responsibility of scientists," a review of that literature reveals many and sometimes competing views, and the lack of data to inform the discussion.

It is within this context that the Science and Human Rights Coalition of the American Association for the Advancement of Science (AAAS) and the AAAS Scientific Responsibility, Human Rights and Law Program decided to develop and distribute an online questionnaire to scientists, engineers and health professionals internationally. The primary aim was to learn their perspectives on the nature and scope of their responsibilities and to identify any apparent similarities and differences in perspectives according to multiple demographic variables. This initial data gathering exercise was seen by the Coalition and SRHRL staff as a means to inform a follow-up survey of the international scientific community that would be more representative and scientifically rigorous.

New Funding Opportunities

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Content Order

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

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

New Funding Solicitations Posted Since June 15 Newsletter

EPA-G2016-ORD-C1 Research Training Program for College and University Students

The mission of the U.S. Environmental Protection Agency (EPA) is to protect human health and the environment. The EPA's Office of Research and Development (ORD) conducts timely, mission-relevant, solution-oriented research based on the principles of integrity, sustainability, and responsiveness to the needs of the Nation. ORD's National Risk Management Research Laboratory's (NRMRL's) research portfolio spans the five goals outlined in EPA's Strategic Plan, and directly supports efforts to reduce greenhouse gas emissions, improve air quality, manage chemical risks, and protect America's water.

EPA-ORD seeks applications from eligible entities to enter into cooperative agreements with EPA that will provide training opportunities for undergraduate and graduate students on-site at EPA-ORD research facilities located in Cincinnati, OH. It is envisioned that the training program will increase both the effectiveness and number of future environmental scientists. The training received under the mentorship of EPA scientists will complement the trainees' academic coursework. The recipient will be responsible for ensuring that the training projects are supportive of the trainees' academic training. Some examples of the fields of study for desirable trainees include, but are not limited to, those majoring in chemistry, engineering, biology, computer science, physical science, life science, ecology, and urban planning. **Due August 16**.

<u>Universities and Minority-Serving Institutions (HBCU/MI) Equipment/Instrumentation</u>

The general aims of the <u>Research and Education Program for HBCU/MI</u> are to (a) enhance research and education programs and capabilities in scientific and engineering disciplines critical to the national security functions of DoD; (b) enhance the capacity of HBCU/MI to participate in DoD research programs and activities; and (c) increase the number of graduates,

including underrepresented minorities, in fields of science, technology, engineering, and mathematics (STEM). **Due August 31.**

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. 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 September 14; full April 24.**

Joint NSF/NIH Initiative on Quantitative Approaches to Biomedical Big Data (QuBBD)

Recent advances in medical and healthcare technologies are creating a paradigm shift in how medical practitioners and biomedical researchers approach the diagnosis, prevention, and treatment of diseases. New imaging technologies, advances in genetic testing, and innovations in wearable and/or ambient sensors are allowing researchers to predict health outcomes and develop personalized treatments or interventions. Coupled with the rapid growth in computing and infrastructure, researchers now have the ability to collect, store, and analyze vast amounts of health- and disease-related data from biological, biomedical, behavioral, social, environmental, and clinical studies. The explosion in the availability of biomedical big data from disparate sources, and the complex data structures including images, networks, and graphs, pose significant challenges in terms of visualization, modeling, and analysis. While there have been some encouraging developments related to foundational mathematical, statistical, and computational approaches for big data challenges over the past decade, there have been relatively few opportunities for collaboration on challenges related to biomedical data science. The National Science Foundation (NSF) and the National Institutes of Health (NIH) recognize that fundamental questions in basic, clinical, and translational research could benefit greatly from multidisciplinary approaches that involve experts in quantitative disciplines such as mathematics, statistics, and computer science. The Quantitative Approaches to Biomedical Big Data Program is designed to support research that addresses important application areas at the intersection of the biomedical and data sciences by encouraging inter- and multi-disciplinary collaborations that focus on innovative and transformative approaches to address these challenges. **Due September 28.**

<u>USDA-NIFA-AFRI-005942 Agriculture and Food Research Initiative - Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area</u>

This AFRI Challenge Area focuses on the priority to mitigate and adapt to climate variability and change. It supports activities that reduce greenhouse gas emissions, increase carbon

sequestration in agricultural and forest production systems, and prepare the nation's agriculture and forests to adapt to variable climates. The long-term outcome for this program is to reduce the use of energy, nitrogen fertilizer, and water by ten percent and increase carbon sequestration by fifteen percent through resilient agriculture and forest production systems. In order to achieve this outcome, this program will support multi-function Integrated Research, Education, and/or Extension Projects and Food and Agricultural Science Enhancement (FASE) Grants. **Due November 17.**

Research Interests of the Air Force Office of Scientific Research BAA-AFRL-AFOSR-2016-0007

The Air Force Office of Scientific Research "we, us, our, or AFOSR" manages the basic research investment for the U.S. Air Force. As a part of the Air Force Research Laboratory (AFRL), our technical experts discover, shape, and champion research within the Air Force Research Laboratory, universities, and industry laboratories to ensure the transition of research results to support U.S. Air Force needs. Using a carefully balanced research portfolio, our research managers seek to foster revolutionary scientific breakthroughs enabling the Air Force and U.S. industry to produce world-class, militarily significant, and commercially valuable products. Our focus is on research areas that offer significant and comprehensive benefits to our national warfighting and peacekeeping capabilities. These areas are organized and managed in two scientific Branches: Engineering and Information Sciences (RTA) Physical and Biological Sciences (RTB). **Open until superseded**.

URL Links to New & Open Funding Solicitations

- HHS Grants Forecast
- American Cancer Society Index of Grants
- SAMHSA FY 2014 Grant Announcements and Awards
- DARPA Microsystems Technology Office Solicitations
- Open Solicitations from IARPA (Intelligence Advanced Research Projects Activity)
- Bureau of Educational and Cultural Affairs, Open Solicitations, DOS
- ARPA-E Funding Opportunity Exchange
- DOE Funding Opportunity Exchange
- NIAID Funding Opportunities List
- NPS Broad Agency Announcements (BAAs)
- NIJ Current Funding Opportunities
- NIJ Forthcoming Funding Opportunities
- Engineering Information Foundation Grant Program
- Comprehensive List of Collaborative Funding Mechanisms, NORDP
- ARL Funding Opportunities Open Broad Agency Announcements (BAA)
- HHS Grants Forecast
- American Psychological Association, Scholarships, Grants and Awards
- EPA 2014 Science To Achieve Results (STAR) Research Grants
- NASA Open Solicitations

- Defense Sciences Office Solicitations
- The Mathematics Education Trust
- EPA Open Funding Opportunities
- CDMRP FY 2014 Funding Announcements
- Office of Minority Health
- Department of Justice Open Solicitations
- DOE/EERE Funding Opportunity Exchange
- New Funding Opportunities at NIEHS (NIH)
- National Human Genome Research Institute Funding Opportunities
- Army Research Laboratory Open Broad Agency Announcements (BAA)
- SBIR Gateway to Funding
- Water Research Funding
- Fellowship and Grant Opportunities for Faculty Humanities and Social Sciences
- DARPA Current Solicitations
- Office of Naval Research Currently Active BAAs
- HRSA Health Professions Open Opportunities
- NIH Funding Opportunities Relevant to NIAID
- National Institute of Justice Current Funding Opportunities
- Funding Opportunities by the Department of Education Discretionary Grant Programs
- EPA's Office of Air and Radiation (OAR) Open Solicitations
- NETL Open Solicitations
- DoED List of Currently Open Grant Competitions
- Foundation Center RFP Weekly Funding Bulletin

Solicitations Remaining Open from Prior Issues of the Newsletter

<u>CDNR-RIDGE-2016-001 Request for Applications for Competitive Grant Award To Establish a</u> USDA RIDGE Center for Food and Nutrition Assistance

The U.S. Department of Agriculture (USDA) Economic Research Service (ERS), in collaboration with USDA's Food and Nutrition Service (FNS), invites applications for a competitively awarded grant to establish a research center to administer the Research Innovation and Development Grants in Economics (RIDGE) Program. The USDA Ridge Center will: 1. Provide renewed focus on economic aspects of food and nutrition assistance research; 2. Stimulate innovative research on domestic food and nutrition assistance issues by providing small grants for new analyses of the USDA major food and nutrition assistance programs, food security, and smaller, less studied programs such as the Summer Food Service Program; 3. Broaden the network of social scientists who collaborate in expanding the understanding of the economic, nutrition, and health outcomes of participation in USDA's food assistance programs, as well as of the issues surrounding program implementation and delivery, and 4. Achieve cost savings through consolidating the previous two RIDGE Centers into one institution. ERS anticipates that \$600,000 will be awarded in fiscal year 2016 to support this activity with additional funding, subject to availability, for 2 more years. **Due August 1.**

Agriculture and Food Research Initiative - Water for Agriculture Challenge Area

This AFRI Challenge Area addresses critical water resources issues such as drought, excess soil moisture, flooding, quality and others in an agricultural context. Funding will be used to develop management practices, technologies, and tools for farmers, ranchers, forest owners and managers, public decision makers, public and private managers, and citizens to improve water resource quantity and quality. The long-term goal of the AFRI Water for Agriculture Challenge Area is to tackle critical water issues by developing both regional systems for the sustainable use and reuse, flow and management of water, and at the watershed and farm scales, water issues focused on production and environmental sustainability efforts. Project types supported within this Challenge area are multi-function Integrated Research, Education, and/or Extension Projects and Food and Agricultural Enhancement Grants. **Due August 4.**

Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII)

With the goal of encouraging research independence immediately upon obtaining one's first academic position after receipt of the PhD, the Directorate for Computer and Information Science and Engineering (CISE) will award grants to initiate the course of one's independent research. Understanding the critical role of establishing that independence early in one's career, it is expected that funds will be used to support untenured faculty or research scientists (or equivalent) in their first three years in a primary academic position after the PhD, but not more than a total of five years after completion of their PhD. One may not yet have received any other grants or contracts in the Principal Investigator (PI) role from any department, agency, or institution of the federal government, including from the CAREER program or any other program, post-PhD, regardless of the size of the grant or contract, with certain exceptions noted below. **Due August 10.**

Campus Cyberinfrastructure (CC*)

The Campus Cyberinfrastructure (CC*) program invests in coordinated campus-level cyberinfrastructure (CI) components of data, networking, and computing infrastructure, capabilities, and integrated services leading to higher levels of performance, reliability and predictability for science applications and distributed research projects. Learning and workforce development (LWD) in CI is explicitly addressed in the program. Science-driven requirements are the primary motivation for any proposed activity. **Due August 23.**

Developing a National Research Infrastructure for Neuroscience (NeuroNex)

The goal of this solicitation is to foster the development and dissemination of (1) innovative research resources, instrumentation, and neurotechnologies, and (2) theoretical frameworks for understanding brain function across organizational levels, scales of analysis, and/or a wider range of species, including humans. This interdisciplinary program is one element of NSF's broader effort directed at Understanding the Brain, a multi-year activity that includes NSF's participation in the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative (http://www.nsf.gov/brain/) and the phased approach to develop a national research infrastructure for neuroscience as outlined in the Dear Colleague Letter NSF16-047. NSF envisions a connected portfolio of transformative, integrative projects that create synergistic

links across investigators and communities, yielding novel ways of tackling the challenges of understanding the brain in action and in context. This program solicits proposals that will develop and disseminate innovative neurotechnologies and/or theoretical frameworks that will transform our understanding of the linkages between neural activity and cognition and behavior across different systems, environments, and species, while also providing an avenue for widespread dissemination of these technologies and theoretical frameworks as well as broad training opportunities. **LOI September 2; full October 21**.

<u>Agriculture and Food Research Initiative - Foundational Program</u>

The AFRI Foundational Program is offered to support 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; Bioenergy, Natural Resources, and Environment; Agriculture Systems and Technology; and Agriculture Economics and Rural Communities. Single-function Research Projects, multi-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). **Due September 10.**

<u>Joint DMS/NIGMS Initiative to Support Research at the Interface of the Biological and Mathematical Sciences (DMS/NIGMS)</u>

The Division of Mathematical Sciences in the Directorate for Mathematical and Physical Sciences at the National Science Foundation and the National Institute of General Medical Sciences at the National Institutes of Health plan to support research in mathematics and statistics on questions in the biological and biomedical sciences. Both agencies recognize the need and urgency for promoting research at the interface between the mathematical sciences and the life sciences. This program is designed to encourage new collaborations, as well as to support existing ones. **Due September 14.**

Prediction of and Resilience against Extreme Events National Science Foundation

Natural disasters cause thousands of deaths annually, and in 2013 alone caused over \$130 billion in damage worldwide. There is clear societal need to better understand and mitigate the risks posed to the US by natural hazards, consistent with the mandate of the National Science Foundation (NSF);to promote the progress of science [and] advance the national health, prosperity, and welfare; NSF and the Directorate for Geosciences (GEO) have long supported basic research in scientific and engineering disciplines necessary to understand natural hazards and extreme events, including through the Interdisciplinary Research in Hazards and Disasters (Hazards SEES) program and multiple core programs in the GEO Directorate. PREEVENTS is designed as a logical successor to Hazards SEES and is one element of the NSF-wide Risk and Resilience activity, which has the overarching goal of improving predictability and risk assessment, and increasing resilience, in order to reduce the impact of extreme events on our life, society, and economy. PREEVENTS will provide an additional mechanism to support research and related activities that will improve our understanding of the fundamental processes underlying natural hazards and extreme events in the geosciences. PREEVENTS is

focused on natural hazards and extreme events, and not on technological or deliberately human-caused hazards. The PREEVENTS portfolio will include the potential for disciplinary and multidisciplinary research at all scales, particularly aimed at areas ripe for significant near- or medium-term advances. PREEVENTS seeks projects that will (1) enhance understanding of the fundamental processes underlying natural hazards and extreme events on various spatial and temporal scales, as well as the variability inherent in such hazards and events, and (2) improve our capability to model and forecast such hazards and events. All projects requesting PREEVENTS support must be primarily focused on these two targets. In addition, PREEVENTS projects will improve our understanding of the effects of natural hazards and extreme events and will enable development, with support by other programs and organizations, of new tools to enhance societal preparedness and resilience against such impacts. **Due September 19.**

<u>Agriculture and Food Research Initiative Sustainable Bioenergy and Bioproducts (SBEBP)</u> Challenge Area

In the Agriculture and Food Research Initiative Sustainable Bioenergy and Bioproducts (SBEBP) Challenge Area specific program areas are designed to achieve the long term outcome of reducing the national dependence on foreign oil through the development and production of regionally-appropriate sustainable bioenergy systems that materially deliver advanced liquid transportation biofuels, biopower, and bioproducts. **Due September 22.**

AFRI Sustainable Bioenergy and Bioproducts RFA

In the Agriculture and Food Research Initiative Sustainable Bioenergy and Bioproducts (SBEBP) Challenge Area specific program areas are designed to achieve the long term outcome of reducing the national dependence on foreign oil through the development and production of regionally-appropriate sustainable bioenergy systems that materially deliver advanced liquid transportation biofuels, biopower, and bioproducts. In FY2016, the SBEBP is soliciting applications in the following priority areas: (1) Regional Bioenergy Coordinated Agricultural Projects (CAPs) that focus on the production and delivery of regionally-appropriate sustainable biomass feedstocks for bioenergy and bioproducts. While the focus of CAPs will be on feedstocks, competitive proposals must present the feedstock development and production in the context of a comprehensive regional sustainable bioenergy and bioproducts supply chain systems; and (2) Investing in America's Scientific Corps: Preparing a New Generation of Students, Faculty, and Workforce for Emerging Challenges in Bioenergy, Bioproducts, and the Bioeconomy. The anticipated amount available for grants in FY 2016 is approximately \$21 million. **Due September 22.**

Bridges to the Baccalaureate (R25)

The NIH Research Education Program (R25) supports research education activities in the mission areas of the NIH. The over-arching goal of this NIGMS R25 program is to support educational activities that enhance the diversity of the biomedical, behavioral and clinical research workforce. To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on Courses for Skills Development, Research Experiences, and Curriculum or Methods Development. A proposed program must include each activity and describe how they will be integrated. The Bridges to Baccalaureate Program is

intended to provide these activities to community college students to increase transfer and retention to BS graduation in biomedical sciences. This program requires partnerships between community colleges or other two-year post-secondary educational institutions granting the associate degree with colleges or universities that offer the baccalaureate degree. Applicants should directly address how the set of activities will complement and/or enhance the training of a workforce to meet the nation's biomedical and clinical research needs by discussing 1) the rationale underlying the balance of effort and resources dedicated to each activity; 2) how the activities integrate; and 3) objective indicators that can measure the effectiveness of the program. Recruitment and retention plans are required elements of the program. **Due September 25**.

Bridges to the Doctorate (R25)

The NIH Research Education Program (R25) supports research education activities in the mission areas of the NIH. The over-arching goal of this NIGMS R25 program is to support educational activities that enhance the diversity of the biomedical, behavioral and clinical research workforce. To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on Courses for Skills Development and Research Experiences. The Bridges to Doctorate Program is intended to provide these activities to master's level students to increase transition to and completion of PhDs in biomedical sciences. This program requires partnerships between master's degree-granting institutions with doctorate degree-granting institutions. Applicants should directly address how the set of activities will complement and/or enhance the training of a diverse workforce that also meets the nation's biomedical and clinical research needs by discussing 1) the rationale underlying the balance of effort and resources dedicated to each activity; 2) how the activities integrate; and 3) objective indicators that can measure the effectiveness of the program. A program application must include each activity, and describe how they will be synergized to make a comprehensive program. Additionally, recruitment and retention plans are expected as part of the application. **Due September 25.**

20160929-FT Summer Stipends National Endowment for the Humanities

Summer Stipends support individuals pursuing advanced research that is of value to humanities scholars, general audiences, or both. Eligible projects usually result in articles, monographs, books, digital materials and publications, archaeological site reports, translations, editions, or other scholarly resources. Summer Stipends support continuous full-time work on a humanities project for a period of two consecutive months. Summer Stipends support projects at any stage of development. Due September 29.

N00014-16-R-FO05 Multidisciplinary Research Program of the University Research Initiative Department of Defense Office of Naval Research

The MURI program supports basic research in science and engineering at U.S. institutions of higher education (hereafter referred to as "universities") that is of potential interest to DoD. The program is focused on multidisciplinary research efforts where more than one traditional discipline interacts to provide rapid advances in scientific areas of interest to the DoD. As defined in the DoD Financial Management Regulation: Basic research is systematic study

directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. It includes all scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs. It is farsighted high payoff research that provides the basis for technological progress (DoD 7000.14-R, vol. 2B, chap. 5, para. 050201.B). DoD's basic research program invests broadly in many specific fields to ensure that it has early cognizance of new scientific knowledge. The FY 2017 MURI competition is for the topics listed below. Detailed descriptions of the topics and the Topic Chief for each can be found in Section VIII, entitled, "Specific MURI Topics," of this FOA. The detailed descriptions are intended to provide the offeror a frame of reference and are not meant to be restrictive to the possible approaches to achieving the goals of the topic and the program. **Due November 15.**

Open Solicitations and BAAs

[BAA's remain open for one or more years. During the open period, agency research priorities may change or other modifications are made to a published BAA. If you are submitting a proposal in response to an open solicitation, as below, check for modifications to the BAA at Grants.gov or by utilizing Modified Opportunities by Agency to receive a Grants.gov notification of recently modified opportunities by agency name.]

FY 2016 Continuation of Solicitation for the Office of Science Financial Assistance Program

The Office of Science (SC) of the Department of Energy hereby announces its continuing interest in receiving grant applications for support of work in the following program areas: Advanced Scientific Computing Research, Basic Energy Sciences, Biological and Environmental Research, Fusion Energy Sciences, High Energy Physics, and Nuclear Physics. On September 3, 1992, DOE published in the Federal Register the Office of Energy Research Financial Assistance Program (now called the Office of Science Financial Assistance Program), 10 CFR 605, as a Final Rule, which contained a solicitation for this program. Information about submission of applications, eligibility, limitations, evaluation and selection processes and other policies and procedures are specified in 10 CFR 605. This Funding Opportunity Announcement (FOA), DE-FOA-0001414, is our annual, broad, open solicitation that covers all of the research areas in the Office of Science and is open throughout the Fiscal Year. **This FOA will remain open until September 30, 2016**, 11:59 PM Eastern Time, or until it is succeeded by another issuance, whichever occurs first.

DoD USAMRMC FY16 Broad Agency Announcement for Extramural Medical Research

The U.S. Army Medical Research and Materiel Command's (USAMRMC) mission is to provide solutions to medical problems of importance to the American Service member at home and abroad, as well as to the general public at large. The scope of this effort and the priorities attached to specific projects are influenced by changes in military and civilian medical science and technology, operational requirements, military threat assessments, and national defense strategies. The extramural research and development programs play a vital role in the

fulfillment of the objectives established by the USAMRMC. General information on USAMRMC can be obtained at https://mrmc.detrick.army.mil/ . This Fiscal Year 2016 (FY16) Broad Agency Announcement (BAA) is intended to solicit extramural research and development ideas and is issued under the provisions of the Competition in Contracting Act of 1984 (Public Law 98-369), as implemented in Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016. In accordance with FAR 35.016, projects funded under this BAA must be for basic and applied research and that part of development not related to the development of a specific system or hardware procurement. Projects must be for scientific study and experimentation directed toward advancing the state-of-the-art or increasing knowledge or understanding rather than focusing on a specific system or hardware solution. Research and development funded through this BAA is intended and expected to benefit and inform both military and civilian medical practice and knowledge. This BAA provides a general description of USAMRMC's research and development programs, including research areas of interest, evaluation and selection criteria, preproposal/pre-application and full proposal/application preparation instructions, and general administrative information. Specific submission information and additional administrative requirements can be found in the document titled "General Submission Instructions" available in Grants.gov along with this BAA. This FY16 BAA is continuously open for a 12-month period, from October 1, 2015 through September 30, 2016, at 11:59 p.m. Eastern Time. Submission of a pre-proposal/pre-application is required and must be submitted through the electronic Biomedical Research Application Portal (eBRAP) (https://eBRAP.org/). Pre-proposals/preapplications may be submitted at any time throughout the 12-month period. If the USAMRMC is interested in receiving a full proposal/application, the PI will be sent an invitation to submit via eBRAP. A full proposal/application must be submitted through Grants.gov (http://www.grants.gov/). Invited full proposals/applications can be submitted under the FY16 BAA through September 30, 2016.

W912HZ-16-BAA-01 2016 Broad Agency Announcement Department of Defense Engineer Research and Development Center

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, computer science, telecommunications management, energy, facilities maintenance, materials and structures, engineering processes, environmental processes, land and heritage conservation, and ecological processes. The BAA is available at http://erdc.usace.army.mil and is open until superseded. Proposals may be

accepted at any time. For questions regarding proposals to CHL, EL, GSL, TEC & ITL, contact Mike Lee at 601-634-3903 or via email at Michael.G.Lee@usace.army.mil. For questions regarding 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 regarding proposals at CRREL, contact Ashley Jenkins at 217-373-7297 or via email at Ashley.M.Jenkins@usace.army.mil . Contact the technical personnel listed at the end of each topic area for questions concerning the topic areas themselves. **Open until January 31, 2017**.

US Special Operations Command Broad Agency Announcement

This BAA is intended to solicit extramural research and development ideas, and is issued under the provisions of the Competition in Contracting Act of 1984 (Public Law 98-369), as implemented in Federal Acquisition Regulation 6.102(d) (2) and 35.016. This announcement provides a general description of USSOCOM's research areas of interest, general information, evaluation and selection criteria, and proposal/application preparation instructions. In accordance with FAR 6.102, projects funded under this announcement must be for basic and applied research and that part of development not related to the development of a specific system or hardware procurement. Projects must be for scientific study and experimentation directed toward advancing the state-of-the-art or increasing knowledge or understanding. Projects that are for the development of a specific system or hardware procurement will not be considered. The selection process is highly competitive and the quantity of meaningful proposal/applications (both pre-proposal/pre-applications and full proposal/full applications) typically received exceed the number of awards that available funding can support. This BAA provides a general description of USSOCOM's research and development programs, including research areas of interest, evaluation and selection criteria, pre-proposal/pre-application and full proposal/application preparation instructions, and general administrative information. Specific submission information and additional administrative requirements can be found in the document titled "General Submission Instructions" available in Grants.gov along with this BAA. Open to May 14, 2017.

W911NF-12-R-0012 Army Research Office Broad Agency Announcement for Basic and Applied Scientific Research

The purpose of this Broad Agency Announcement (BAA) is to solicit research proposals in the engineering, physical, life, and information sciences for submission to the Army Research Office (ARO) for consideration for possible funding. For ease of reference, this BAA is an extraction of the ARO sections of the Army Research Laboratory BAA.

(www.arl.army.mil/www/default.cfm?page=8). Open to May 31, 2017

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 <u>Army Research Laboratory</u> (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**.

DARPA-BAA-16-46 Defense Sciences Office Office-wide

The mission of the Defense Advanced Research Projects Agency (DARPA) Defense Sciences Office (DSO) is to identify and pursue high-risk, high-payoff research initiatives across a broad spectrum of science and engineering disciplines and to transform these initiatives into game-changing technologies for U.S. national security. In support of this mission, the DSO Office-wide BAA invites proposers to submit innovative basic or applied research concepts in one or more of the following technical areas: Mathematics, Modeling and Design; Physical Systems; Human-Machine Systems; and Social Systems. Each of these areas is described below and includes a list of example research topics that highlight several (but not all) potential areas of interest. Proposals must investigate innovative approaches that enable revolutionary advances. DSO is explicitly not interested in approaches or technologies that primarily result in evolutionary improvements to the existing state of practice. **Open until June 22, 2017.**

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

University Small Grants Broad Agency Announcement

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

HM0210-14-BAA-0001 National Geospatial-Intelligence Agency Academic Research Program

NGA welcomes all innovative ideas for path-breaking research that may advance the GEOINT mission. The NGA mission is to provide timely, relevant, and accurate geospatial intelligence (GEOINT) in support of national security objectives. GEOINT is the exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the Earth. GEOINT consists of imagery, imagery intelligence, and geospatial information. NGA offers a variety of critical GEOINT products in support of U.S. national security objectives and Federal disaster relief, including aeronautical, geodesy, hydrographic, imagery, geospatial and topographical information. The NGA Academic Research Program (NARP) is focused on innovative, far-reaching basic and applied research in science, technology, engineering and mathematics having the potential to advance the GEOINT mission. The objective of the NARP is to support innovative, high-payoff research that provides the basis for revolutionary progress in areas of science and technology affecting the needs and mission of NGA. This research also supports the National System for Geospatial Intelligence

(NSG), which is the combination of technology, systems and organizations that gather, produce, distribute and consume geospatial data and information. This research is aimed at advancing GEOINT capabilities by improving analytical methods, enhancing and expanding systems capabilities, and leveraging resources for common NSG goals. The NARP also seeks to improve education in scientific, mathematics, and engineering skills necessary to advance GEOINT capabilities. It is NGA's intent to solicit fundamental research under this BAA. Fundamental research means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from Industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reason. (National Security Decision Directive (NSDD) 189, National Policy on the Transfer of Scientific, Technical, and Engineering Information). NGA seeks proposals from eligible U.S. institutions for path-breaking GEOINT research in areas of potential interest to NGA, the DoD, and the Intelligence Community (IC). **Open to September 30, 2017.**

NOAA-NFA-NFAPO-2016-2004791 FY2016 to FY2017 NOAA Broad Agency Announcement

This notice is not a mechanism to fund existing NOAA awards. 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. Funding for activities described in this notice is contingent upon the availability of Fiscal Year 2016 and Fiscal Year 2017 appropriations. Applicants are hereby given notice that funds have not yet been appropriated for any activities described in this notice. Publication of this announcement does not oblige NOAA to review an application beyond an initial administrative review, or to award any specific project, or to obligate any available funds. Open to September 30, 2017.

NOAA-OAR-SG-2016-2004772 National Sea Grant College Program 2016-17 Special Projects

The purpose of this notice is to request proposals for special projects associated with the National Sea Grant College Program's (Sea Grant) strategic focus areas, and to provide the general public with information and guidelines on how Sea Grant will select proposals and administer Federal assistance under this announcement. This announcement is a mechanism to encourage research or other projects that are not normally funded through Sea Grant national competitions. This opportunity is open only to Sea Grant Programs. Section III of this announcement describes eligibility requirements in more detail. Funding has not yet been made available to support applications submitted to this Federal Funding Opportunity (FFO), but such funding may become available during the year. Section II.A. below describes individual competition announcements that will be used to announce when funding is available; any restrictions or requirements on such funding, such as matching funds; and other funding details. Awards will be made under this FFO only if funds have been announced as provided in this FFO. **Open to September 30, 2017.**

BAA-16-100-SOL-00002 Broad Agency Announcement (BAA) for the Advanced Development of Medical Countermeasures for Pandemic Influenza- BARDA

BARDA (<u>full announcement</u>) encourages the advanced research, development and acquisition of medical countermeasures such as vaccines, therapeutics, and diagnostics, as well as innovative approaches to meet the threat of Pandemic Influenza in support of the preparedness mission and priorities of the HHS Public Health Emergency Medical Countermeasures Enterprise (PHEMCE) articulated in the 2014 PHEMCE Implementation Plan. The Implementation Plan is located on the ASPR website:

http://www.phe.gov/Preparedness/mcm/phemce/Documents/2014-phemce-sip.pdf The Pandemic and All Hazard Preparedness Act Pub. L. No. 109-417, 42 U.S.C. § 241 et seq. (PAHPA; http://www.gpo.gov/fdsys/pkg/PLAW-109publ417/pdf/PLAW-109publ417.pdf) and The Pandemic and All Hazard Preparedness Reauthorization Act Pub. L. No. 113-5, (PAHPRA: http://www.gpo.gov/fdsys/pkg/PLAW-113publ5/pdf/PLAW-113publ5.pdf) authorizes BARDA to (i) conduct ongoing searches for, and support calls for, potential qualified countermeasures and qualified pandemic or epidemic products; (ii) direct and coordinate the countermeasure and product advanced research and development activities of the Department of Health and Human Services; (iii) establish strategic initiatives to accelerate countermeasure and product advanced research and development (which may include advanced research and development for purposes of fulfilling requirements under the Federal Food, Drug, and Cosmetic Act or section 351 of this Act) and innovation in such areas as the Secretary may identify as priority unmet need areas; and (iv) award contracts, grants, cooperative agreements, and enter into other transactions, for countermeasure and product advanced research and development. Development Area of Interest: The purpose of this BAA is to solicit proposals that focus on one or more of the following area of interest as listed below: Development Area of Interest; Personal Protective Equipment (Mask and Respirators) for Influenza Infection for All- Hazards; Full-Featured Continuous Ventilators for Influenza and All-Hazards; Influenza Test Systems and Diagnostic Tools; Influenza Therapeutics; Influenza Vaccines BARDA anticipates that research and development activities awarded from this Broad Agency Announcement (BAA) will serve to advance the knowledge and scientific understanding of candidates' to protect the civilian population of the United States against pandemic influenza and serve to advance candidate medical countermeasures towards licensure or approval by the Food and Drug Administration (FDA). Open to Oct. 24, 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.**

<u>United States Army Research Institute for the Behavioral and Social Sciences Broad Agency</u> Announcement for Basic, Applied, and Advanced Scientific Research (FY13-18)

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

BAA-HPW-RHX-2014-0001 Human-Centered Intelligence, Surveillance Air Force Research Lab

This effort is an open-ended BAA soliciting innovative research concepts for the overall mission of the Human-Centered Intelligence, Surveillance, & Reconnaissance (ISR) Division (711 HPW/RHX). It is intended to generate research concepts not already defined and planned by RHX as part of its core S&T portfolio. The core RHX mission is to develop human-centered S&T that (1) enables the Air Force to better identify, locate and track humans within the ISR environment and (2) enhance the performance of ISR analysts. To accomplish this mission, the RHX core S&T portfolio is structured into three major research areas: (1) Human Signatures develop technologies to sense and exploit human bio-signatures at the molecular and macro (anthropometric) level, (2) Human Trust and Interaction – develop technologies to improve human-to-human interactions as well as human-to-machine interactions, and (3) Human Analyst Augmentation – develop technologies to enhance ISR analyst performance and to test the efficacy of newly developed ISR technologies within a simulated operational environment. The RHX mission also includes research carried over from the Airman Biosciences and Performance Program. While not directly linked to the core S&T strategic plan, there exists a unique capability resident within RHX to address critical Air Force operational and sustainment needs resulting from chemical and biological hazards. Research areas include contamination detection, hazard assessment and management, individual and collective protection, and restoration and reconstitution of operational capability. Open to Feb. 12, 2018.

<u>Air Force BAA - Innovative Techniques and Tools for the Automated Processing and Exploitation (APEX) Center</u>

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.

<u>PAR-16-242 Bioengineering Research Grants (BRG) (R01) Department of Health and Human</u> <u>Services National Institutes of Health</u>

The purpose of this funding opportunity announcement is to encourage collaborations between the life and physical sciences that: 1) apply a multidisciplinary bioengineering approach to the solution of a biomedical problem; and 2) integrate, optimize, validate, translate or otherwise accelerate the adoption of promising tools, methods and techniques for a specific research or clinical problem in basic, translational, or clinical science and practice. An application may propose design-directed, developmental, discovery-driven, or hypothesis-driven research and is appropriate for small teams applying an integrative approach to increase our understanding of and solve problems in biological, clinical or translational science. **Open to May 9, 2019.**

<u>BAA-RQKD-2014-0001 Open Innovation and Collaboration Department of Defense Air Force -- Research Lab</u>

Open innovation is a methodology to capitalize on diverse, often non-traditional talents and insights, wherever they reside, to solve problems. Commercial industry has proven open innovation to be an effective and efficient mechanism to overcome seemingly impossible technology and/or new product barriers. AFRL has actively and successfully participated in collaborative open innovation efforts. While these experiences have demonstrated the power of open innovation in the research world, existing mechanisms do not allow AFRL to rapidly enter into contractual relationships to further refine or develop solutions that were identified. This BAA will capitalize on commercial industry experience in open innovation and the benefits already achieved by AFRL using this approach. This BAA will provide AFRL an acquisition tool with the flexibility to rapidly solicit proposals through Calls for Proposals and make awards to deliver innovative technical solutions to meet present and future compelling Air Force needs as ever-changing operational issues become known. The requirements, terms and specific deliverables of each Call for Proposals will vary depending on the nature of the challenge being addressed. It is anticipated that Call(s) for Proposals will address challenges in (or the

intersection between) such as the following technology areas: Materials: - Exploiting material properties to meet unique needs - Material analysis, concept / prototype development, and scale up Manufacturing Processes that enable affordable design, production and sustainment operations Aerospace systems: - Vehicle design, control, and coordinated autonomous and/or manned operations - Power and propulsion to enable next generation systems Human Effectiveness: - Methods and techniques to enhance human performance and resiliency in challenging environments - Man – Machine teaming and coordinated activities Sensors and Sensing Systems: - Sensor and sensing system concept development, design, integration and prototyping - Data integration and exploitation. **Open to July 12, 2019.**

HDTRA1-14-24-FRCWMD-BAA Fundamental Research to Counter Weapons of Mass Destruction

** Fundamental Research BAA posted on 20 March 2015.** Potential applicants are strongly encouraged to review the BAA in its entirety. **Please note that ALL general correspondence for this BAA must be sent to HDTRA1-FRCWMD-A@dtra.mil. Thrust Area-specific correspondence must be sent to the applicable Thrust Area e-mail address listed in Section 7: Agency Contacts.** Open to Sept. 30, 2019.

BAA-RQKH-2015-0001 Methods and Technologies for Personalized Learning, Modeling and Assessment Air Force -- Research Lab

The Air Force Research Laboratories and 711th Human Performance Wing are soliciting white papers (and later technical and cost proposals) on the following research effort. This is an open ended BAA. The closing date for submission of White Papers is 17 Nov 2019. This program deals with science and technology development, experimentation, and demonstration in the areas of improving and personalizing individual, team, and larger group instructional training methods for airmen. The approaches relate to competency definition and requirements analysis, training and rehearsal strategies, and models and environments that support learning and proficiency achievement and sustainment during non-practice of under novel contexts. This effort focuses on measuring, diagnosing, and modeling airman expertise and performance, rapid development of models of airman cognition and specifying and validating, both empirically and practically, new classes of synthetic, computer-generated agents and teammates. An Industry Day was held in November 2014. Presentation materials from the Industry Day and Q&A's are attached. If you would like a list of Industry Day attendees, send an email request to helen.williams@us.af.mil Open until November 17, 2019.

BAA-AFRL-RQKMA-2016-0007 Air Force Research Laboratory, Materials & Manufacturing Directorate, Functional Materials and Applications (AFRL/RXA) Two-Step Open BAA

Air Force Research Laboratory, Materials & Manufacturing Directorate is soliciting White Papers and potentially technical and cost proposals under this two-step Broad Agency Announcement (BAA) that is open for a period of five (5) years. Functional Materials technologies that are of interest to the Air Force range from materials and scientific discovery through technology development and transition, and support the needs of the Functional Materials and Applications mission. Descriptors of Materials and Manufacturing Directorate technology

interests are presented in the context of functional materials core technical competencies and applications. Applicable NAICS codes are 541711 and 541712. **Open to April 20, 2021.**

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