Research Development & Grant Writing News

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About the co-publishers

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

About the Editor

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

Research Development & Grant Writing News

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Planning for New Funding Directions in Food and Agricultural Related Research

By Mike Cronan, co-publisher

The 60-page report released in April, *Retaking the Field: Science Breakthroughs for Thriving Farms and a Healthier Nation,* highlights research within areas identified by the National Academies of Sciences, Engineering, and Medicine as critical to feeding the world's growing population. It follows the 242-page report released in 2018 by The National Academies, *Science Breakthroughs to Advance Food and Agricultural Research by 2030* (available as a free pdf download at this URL) that *identifies five breakthrough research opportunities using a convergent approach* to make the U.S. food and agricultural system more efficient, resilient, and sustainable.

The takeaway from these reports is that the *disciplinary boundaries of agricultural research are expanding rapidly.* Those in traditional agricultural domains need to *prepare for a much different disciplinary future* and those in other scientific, computational, and engineering disciplines need to *prepare for potential convergent partnerships with faculty in Colleges of Agriculture* to better position for the funding opportunities suggested by these reports. Among many other recent reports from the National Academies, these reports reveal that future funding directions at federal agencies are hopping and crisscrossing disciplinary boundaries under the convergent umbrella much more quickly than researchers are aware. *A review of these reports will give insight into how to better compete for funding in a convergent funding universe*.

For faculty and research offices alike, these five research areas describe a future research landscape and future funding opportunities that are key to long-range planning for funding in the agricultural and related sciences. Moreover, in this case, the reports' *emphasis on the advantages of convergent research* means that a broad range of academic disciplines across colleges and departments will want to explore these research domains to position themselves for future funding.

In short, the recent emphasis on convergence research by funding agencies such as NSF and USDA/NIFA, as well as in National Academic reports, means the old disciplinary silos, e.g., what would be considered the "traditional agricultural disciplines," are breaking down and being replaced by new disciplinary configurations that would have been unrecognizable in the past. In this case specifically, as both reports note, the five breakthrough areas include Genomics, Microbiomes, Sensors, Data and Informatics, and Transdisciplinary research. These terms are defined as:

- **Genomics**. Harnessing the potential of genomics and precision breeding to improve plant and animal traits.
- **Microbiomes**. Increasing understanding of the animal, soil, and plant microbial communities and their broader applications across the food system.
- **Sensors**. Employing existing sensors and developing new sensing technologies to enable rapid detection and monitoring.

- **Data & Informatics**. Capitalizing on informatics to enable advanced analytics using data sciences, information technology, and artificial intelligence.
- **Transdisciplinary**. Prioritizing transdisciplinary science and systems approaches.

It is important to note that two of the five breakthrough areas above—sensors and data and informatics—are traditional engineering and not agricultural disciplines, typically housed in departments such as electrical engineering, computer engineering, computer science, computational mathematics, or various similar configurations. Moreover, significant federal funding has been directed to these research areas, particularly by the National Science Foundation, over the past decade, as well as new directions in related topics under NSF's Big Ideas program, such as the above mentioned artificial intelligence. The point here is to recognize the new types and configurations of partnerships that will need to develop to keep pace with these breakthrough agricultural research areas.

In this regard, the report (2030) explores the availability of relatively new scientific developments across all disciplines that could accelerate progress toward these goals. It identifies the most promising scientific breakthroughs with the greatest potential impact on food and agriculture achievable by 2030. Specifically, the report notes (emphasis added): "The research directions described in this report depend *on assimilating cutting-edge developments from allied fields—such as computing, information science, machine learning, materials science and electronics, genomics and gene editing, and behavioral and cognitive science—to achieve solutions to overarching and complex problems faced by agriculture*. Leveraging the advances from other disciplines implies a need for the food and agricultural sciences to attract and train research talent in those areas."

The identified five breakthrough opportunities that *benefit from a convergent approach to research are* elaborated more fully below (emphasis added).

1. **"A systems approach to understand the nature of interactions among the different elements of the food and agricultural system can be leveraged to increase overall system efficiency, resilience, and sustainability.** Progress is only able to occur when the scientific community begins to more methodically integrate science, technology, human behavior, economics, policy, and regulations into biophysical and empirical models. Transdisciplinary science and systems approaches should be prioritized to solve agriculture's most vexing problems, the report says. Enticing and enabling researchers from disparate disciplines to work effectively together on food and agricultural issues will require incentives in support of the collaboration.

2. **"The development and validation of highly sensitive, field-deployable sensors and biosensors will enable rapid detection and monitoring capabilities across various food and agricultural disciplines.** Sensing technology has been used widely in food and agriculture to provide point measurements for a characteristic of interest, such as temperature, but the ability to continuously monitor several characteristics at once is the key to understanding both what is happening in the target system and how it is occurring. An initiative should be created to more effectively develop and employ sensing technologies across all areas of food and agriculture. For example, soil and crop sensors could provide a continuous data feed and alert a farmer when moisture content

falls below a critical level to initiate site-specific irrigation to a group of plants, eliminating the need to irrigate an entire field.

3. **"The application and integration of data sciences, software tools, and systems models will enable advanced analytics for managing the food and agricultural system.** The food and agricultural system collects an enormous amount of data, but has not had the right tools to use it effectively, as data generated in research laboratories and in the field have been maintained in an unconnected manner, the report says. The ability to more quickly collect, analyze, store, share, and integrate heterogeneous datasets will vastly improve understanding of the complex problems, and ultimately, lead to the widespread use of near-real-time, data-driven management approaches.

4. **"The ability to carry out routine gene editing of agriculturally important organisms will allow for precise and rapid improvement of traits important for productivity and quality.** Gene editing is poised to accelerate breeding to generate traits in plants, microbes, and animals that improve efficiency, resilience, and sustainability, the report says. This capability opens the door to domesticating new crops and soil microbes, developing disease-resistant plants and livestock, controlling organisms' response to stress, and mining biodiversity for useful genes. Furthermore, crops could be effectively modified for enhanced taste and nutritional value.

5. **"Understanding the relevance of the microbiome to agriculture and harnessing this knowledge will improve crop production, transform feed efficiency, and increase resilience to stress and disease.** Research on the human microbiome demonstrates the effect of resident microbes on the body's health; however, a detailed understanding of the microbiomes in agriculture is markedly more rudimentary. A transdisciplinary research effort focused on the various agriculturally relevant microbiomes and the complex interactions between them would help modify and improve numerous aspects of the food and agricultural continuum. For example, understanding the microbiome in animals could help to more precisely tailor nutrient rations and increase feed efficiency."

In conclusion, a deep dive into the minutiae and details of each of these reports is not necessary for research offices to assist faculty in developing funding strategies that competitively position them for research opportunities in these breakthrough topics. But it is helpful for research offices to have an understanding of the summary discussions on the five topics addressed in the reports, know where the relevant research expertise exists on campus that maps to these research topics, and work with faculty as needed to configure research partnerships that map to the breakthrough topics.

Do You Know Where Your Research Fits in Your Discipline's State of the Art?

By Mike Cronan, co-publisher

Almost every research and educational proposal in any discipline to any federal funding agency will be judged on the author's ability to explain how it fits into the ___current and emerging state of the disciplinary field___. Unfortunately, ***too many proposals explain this poorly***. In the absence of a careful explanation, reviewers are likely to challenge the value and significance of the proposed research. More surprisingly, many research narratives completely lack ***a description of where the proposed research fits into the current state of the field.*** It goes without saying that such proposals are declined for funding. By contrast, the author(s) of funded proposals will have addressed this question convincingly early in their research narrative.

This fatal flaw occurs surprisingly often in proposals. Or maybe, in another sense, it is not surprising given the challenge, even to experienced PIs, of addressing this topic ***on the first page*** of the research narrative. On the ___first page___ is the key point here because it can be difficult to explain why the proposed research is currently cutting edge in the field rather than "bringing up the rear." But it is the most critical claim to be made quickly to capture the reviewers' interest in funding the proposed research.

Addressing this question requires a Goldilocks Solution —neither too hot nor too cold; that is, you ***don't want to understate*** your impact on the field, ***but worse by far, you don't want to overstate it.*** You must show that you are informed about the research being done by others so you can best set your proposed research in that critical context. This is basically like the iconic "***compare and contrast***" writing topic familiar to anyone who has taken the common college core course of first-year composition, but with a lot more consequence being based upon how well you perform the assignment.

The bottom line for this compare and contrast assignment is the realization that there is real money on the table for those who compellingly compare and contrast their proposed research to the current research being done in the field. In addition, those who successfully compare and contrast the impact or value-added benefits of their proposed research for the funding agency's mission priorities will stand to gain from the comparison. ***These two comparisons lie at the crux of reviewers' and program officers' funding decisions.***

Many solicitations state this requirement ***explicitly,*** but many other**s may simply assume** that PIs know to address this topic in their research narrative. PIs often overlook this assumption, leaving it to a good editor to note its absence in an early proposal draft. However, when it is stated explicitly, as in the below example from a recent DOE FOA, requiring the author(s) to explain the "***Extent to which the applicant demonstrates knowledge of the current state-of-the-art or baseline technology and how the proposed project will move the state-of-the-art,***" it becomes the heart of the proposal and the __key determinate of being funded or not funded__.

Review Criterion 1: Technical Merit, Innovation, and Impact (50% of scoring) in this DOE FOA, which can be viewed as a generic or common example, elaborates more fully by requiring consideration of the following factors (emphasis added):

- "Technical Merit and Innovation
- Extent to which the proposed technology or process is **innovative**;
- Degree to which the current state of the technology and the proposed advancement are **clearly described**;
- **Extent to which the application specifically and convincingly demonstrates how the applicant will** move the state of the art to the proposed advancement;
- Sufficiency of technical detail in the application to assess whether the proposed work is **scientifically meritorious and revolutionary**, including relevant data, calculations and discussion of **prior work in the literature** with analyses that support the viability of the proposed work; and
- **The potential impact of the project on advancing the state-of-the-art**."

This explicitly stated characterization is meant to guide PIs in describing where their proposed research fits in the state of the art in the current and emerging disciplinary field, and it is interchangeable across federal funding agencies. As noted earlier, this needs to be addressed in every proposal from NSF to NEH, and it can be done by adapting the above DOE language to the language used by other funding agencies.

In the case of NSF, for example, the above may be stated explicitly in some solicitations as part of the project-specific review criteria, but only implicitly in other NSF solicitations. The point to remember is that this issue has to be *addressed early on in the research narrative* if you hold out any chance for funding. Moreover, if there is one key summary of critical funding advice that PIs and research office staff may decide to tattoo in mirror image on their foreheads, **this would be it. In this way,** every time PIs look in the mirror *when either writing a proposal, reviewing a proposal, or editing a proposal,* they are reminded of what needs to be clearly described to secure funding.

Is Your Research Relevant to Alzheimer's?
NIH Wants You!

By Lucy Deckard, co-publisher
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The budget for the NIH National Institute on Aging (NIA) has **almost tripled over the last 4 years** in a funding landscape where most Federal research budgets have stagnated or decreased. Why? Most of that increase can be attributed to NIH's efforts to reach the national goal to prevent and effectively treat Alzheimer's Disease by 2025, dictated by the National Alzheimer's Project Act, which was signed into law by President Obama in 2011. As 2025 nears with only limited progress toward that goal, NIH has been committing increasing resources toward that effort, with NIA overseeing that initiative. NIH is using several strategies to accelerate progress toward that goal, which we'll discuss below.

Increased Funding for Alzheimer's Research

The National Alzheimer's Project Act directed NIH to prepare a separate budget request each year for additional funding for Alzheimer's research in order to achieve the 2025 goal. This process, called a "bypass budget," mandates that the request be directly transmitted to the President and then Congress rather than going through the traditional Federal budget process. This also means that there is special designated funding for Alzheimer's research. You can find the bypass budget proposals, along with Alzheimer's disease Bypass Budget Milestones documents, here. These are worth looking at because not only do they discuss budget amounts, they also describe scientific milestones and priorities for funding.

As a result of this process, NIH funding for research on Alzheimer's and related dementias has increased from $1.4B in FY2014 to about $1.9B in FY2018. NIA's budget increased from $1.2B in FY2014 to $3.1B in FY2019, with most of that increase dedicated to Alzheimer's funding. NIH is using that funding in two ways: 1) to support more Alzheimer's research; and 2) to encourage researchers who may not currently be doing Alzheimer's research to enter the field.

In support of the first strategy, **NIA's payline for Alzheimer's research grant applications is at 24 percentile, compared to 15 percentile for regular NIA applications. This is a staggeringly high payline for NIH.** In addition, NIH has issued over 100 Alzheimer's-related funding opportunity announcements (FOAs) in recent years. You can find current NIA Alzheimer's-related FOAs here. The National Institute of Neurological Disorders and Stroke (NINDS) works closely with NIA; you can find information on NINDS Alzheimer's-related funding and priorities here and here.

As we discussed in detail in an article in our March 2014 issue, tracking approved Concepts for an IC can be a great way to anticipate what funding opportunities will be issued over the next couple of years. You can find information on NIA's approved Concepts here.

Supplements for Alzheimer's Research

In addition, NIH recognizes that in order to bring in new perspectives and ideas, they need to entice researchers in other areas to apply their expertise to Alzheimer's research. Toward that goal, NIH is offering supplements for currently funded researchers with projects that don't focus on Alzheimer's to encourage them to develop a focus on Alzheimer's.

All NIH Institutes and Centers (ICs) are participating in "Alzheimer's-focused administrative supplements for NIH grants that are not focused on Alzheimer's disease" (NOT-AG-18-039), in an effort to draw in researchers who may not previously have conducted Alzheimer's research. The work to be supported by the administrative supplement must be within the research or training scope of the original award, which means that Center awards, resource awards, and research that is on a related topic are the most likely to qualify. For example, if your research is related to biostatistics tools that might be applied to Alzheimer's, or on a topic such as pain perception or caregiving that isn't currently explicitly focused on Alzheimer's but is clearly relevant, you would be good candidate for one of these supplements. Each IC has its own guidance and requirements, so you should check with your IC staff before applying.

Alzheimer's Research Summits

NIH also organizes Alzheimer's Research Summits, held at least annually, with the goal of bringing together leading experts and innovators from academia, industry, and advocacy groups to discuss Alzheimer's research progress and recommend future directions. This can be a good way to become informed on the thinking of the research community, particularly if you're new to this topic. Video cast recordings from the 2018 summit are available here.

The Future of STEM Education in the Federal Budget

By Mike Cronan, co-publisher
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John von Neumann, a polymath considered by many the greatest pure and applied mathematician of the 20th century, observed, "*There's no sense in being precise when you don't even know what you're talking about*." This sets the stage for faculty and research offices' attempts to know with certainty what the FY 2020 federal research budget will offer for those submitting research and education proposals. At this stage in the budget process, precision forecasting is an unrealistic expectation. However, the only thing worse than being poorly informed is to be uninformed about funding directions. The funding advantage has always gone to those who can most accurately predict future funding priorities using the least amount of information.

Moreover, federal research and education proposals are often intertwined, particularly at NSF (see Frequently Asked Questions (FAQs) for NSF 19-565, EHR Core Research: Building Capacity in STEM Education Research (ECR: BCSER)), either specific to the solicitation or under the Broader Impacts review criterion that affects every proposal submitted to that agency. Also, keep in mind that many other federal research agencies are following the NSF lead, whereby they are increasingly integrating educational components into research grants, particularly in the area of workforce development in the disciplinary domains of interest to agencies such as NIH, NOAA, DOD, DOE, NASA (see 2019 NASA Teams Engaging Affiliated Museums and Informal Institutions (TEAM II) National Aeronautics and Space Administration), etc.

In December of 2018, a 46-page report by the Committee on STEM Education of the National Science and Technology Council (NSTC), *Charting a Course For Success: America's Strategy For Stem Education,* set the stage for **STEM priorities in the federal budget under the current administration**. NSTC is the principal means by which the Executive Branch coordinates science and technology policy across the Federal research and development enterprise. NSTC's primary objective is to ensure that science and technology policy decisions and programs are consistent with the President's stated goals.

For example, this report sets out a "Federal strategy for the next five years based on a **Vision for a future where all Americans will have lifelong access to high-quality STEM education and the United States will be the global leader in STEM literacy, innovation, and employment**." This vision will be achieved, the report notes, by pursuing three core goals:

- **"Build Strong Foundations for STEM Literacy** by ensuring that every American has the opportunity to master basic STEM concepts, including computational thinking, and to become digitally literate. A STEM-literate public will be better equipped to handle rapid technological change and will be better prepared to participate in civil society.
- **Increase Diversity, Equity, and Inclusion in STEM** and provide all Americans with lifelong access to high-quality STEM education, especially those historically underserved and underrepresented in STEM fields and employment. The full benefits of the Nation's STEM enterprise will not be realized until this goal is achieved.

- **Prepare the STEM Workforce for the Future**—both college-educated STEM practitioners and those working in skilled trades that do not require a four-year degree—by creating authentic learning experiences that encourage and prepare learners to pursue STEM careers. A diverse talent pool of STEM-literate Americans prepared for the jobs of the future will be essential for maintaining the national innovation base that supports key sectors of the economy and for making the scientific discoveries and creating the technologies of the future."

This report gives a general understanding of the STEM education priority areas that will receive federal funding in the FY 2020 budget and <u>over the next five years</u>. Continuous updates to these STEM Education numbers can be found at the American Institute of Physics [Federal Science Budget Tracker](#) (see STEM Education Tab), but keep in mind there is still a lot of movement in these numbers, both up and down, depending on the state of budget negotiations between the Executive Branch and the Congress. Budget numbers representing a decrease or elimination in STEM funding in these tables are denoted by a red font, which, at this stage of the budget process, resembles the red blotches of a measles diagnosis.

In the end, faculty and research offices will play no role in setting the final budget numbers for FY 2020 in the broad area of STEM education. However, the NSTC report *[Charting a Course For Success: America's Strategy For Stem Education](#)*, does lay out three core goals where faculty and research offices alike can begin to strategize for success for whatever STEM Education funding is available in the FY 2020 budget. This process can (1) *start with an analysis of the report in detail*, followed by (2) an *inventory of institutional capacities and expertise in those areas of STEM education given priority in this report*.

This will get you in the ball park of requirements for aligning institutional capacities with likely new funding directions, or identifying reduction or elimination of existing programs. Keep in mind that these three NSTC core areas are not new, although they may have different budget allocations by agency. For example, one priority goal of the NSTC report is to "*Increase Diversity, Equity, and Inclusion in STEM.*" This is not new, but has been a priority STEM education goal across many agencies for many years with funding across a range of institutions nationally, including community colleges, PUIs, MSIs, Research 1, etc.

The takeaway for research offices and faculty is that this report, and other similar reports of importance to universities and aligned with their broad educational mission, demonstrate that in the "*kingdom of the blind, the one-eyed person is king.*" This means, of course, that many overlook the wisdom of setting goals in light of research agency strategic planning documents, such as this NSTC report. *Those who plan in league with agency planning documents gain greater competitive insight for writing a successful proposal to a specific agency in a specific priority area such as new directions in STEM education*.

How the Department of Energy Reviews Your Proposal

By Mike Cronan, co-publisher

Two key documents at the Department of Energy (DOE) describe how your proposal will be reviewed at that agency and explain the review process to be used in conjunction with a Funding Opportunity Announcement (FOA). The first is the 26-page *Merit Review Guide For Financial Assistance* (*MRG, rev. April 14, 2017*) along with related documents here, and the second is a 24-page *Guide for the Submission of Unsolicited Proposals* (*GSUP, rev. April 3, 2017*). These documents are essential to faculty and research offices involved in submitting research proposals to DE.

These documents are also an essential resource to anyone, e.g., research peers or research offices, asked to help review and edit proposals to DOE prior to submission. One of the most critical elements of a proposal review prior to submission is an assessment of whether or not the *research narrative responds fully to the FOA and to the review criteria enumerated in these documents*. It would be *impossible* to make that essential determination *without knowledgeably referencing these documents in the review process*.

These recent updates to these key documents reflect changes at DOE and its leadership team under the new administration. As noted by DOE, "**The MRG has been modified in its entirety**, to update the regulatory references within the document to the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 CFR 200 as adopted and amended by 2 CFR 910, and remove all references to the old DOE Financial assistance rules, 10 CFR 600."

Your proposal can be reviewed in several ways at DOE, as stated by the agency (emphasis added): "Merit reviews may be designed in several formats and completed in different manners. For example, a **merit review panel** can consist of qualified Federal personnel that evaluate the technical/scientific merit of individual applications in accordance with the evaluation criteria and also rate the applications in accordance with the pre-established rating plan.

"**Alternatively**, the technical/scientific merit of individual applications can be **evaluated by multiple teams of qualified non-Federal personnel** that provide strengths and weaknesses in accordance with the evaluation criteria. These strengths and weaknesses would then be provided to the merit review panel of Federal personnel that determine consensus strengths and weaknesses and <u>rate the applications in accordance with the pre-established rating plan</u>.

"**In either case**, the Federal personnel provide the consensus rating for each application to be considered by the Selecting Official in determining which applications are selected to potentially fund. **Program offices may develop and implement internal procedures for conducting merit reviews consistent with the guidelines in this document**. **Program offices may also develop their own merit review procedures through a program rule**. The program rule should include procedures that minimize the administrative burden on reviewers and be stated as clearly and succinctly as possible."

As noted in this document, "The program officials must develop an **Evaluation and Selection Plan** (ESP) that identifies criteria and subcriteria that an application will be evaluated

against to ensure consistency in application evaluations/ratings and to outline/identify and document the financial assistance award selection process. The plan must be developed with the FOA and reviewed and finalized in coordination with CO prior to the release of the FOA. **An Evaluation and Selection Plan is comprised of five basic elements**:

1. Merit Review Criteria (evaluation criteria/subcriteria) to be included in the FOA;
2. A rating system (e.g., adjectival, color coding, numerical, or ordinal);
3. Evaluation standards or rating scale (descriptions which explain the basis for assignment of the various rating system grades/scores);
4. Program policy factors that affect selection; and
5. The basis for selection."

Moreover, this document addresses in detail the several review protocols DOE uses to evaluate applications. It would be prudent for both the PI and research offices to familiarize themselves with the merit review process as addressed in this 26-page document.

Finally, keep in mind that t*his document is to be used in conjunction with the funding solicitation* (FOA) that lays out extensive and project-specific review criteria along with the organizational structure required by the application's research narrative. *Integrating* the merit review process addressed in this document with the project-specific review criteria in the solicitation as they bear on the required order and content of narrative sections gives a proposal a *significant competitive funding advantage*. *The review criteria provide an important checklist that can be mapped against each proposal section to ensure the application responds fully to all DOE requirements.*

Unsolicited Proposals to DOE

The DOE encourages the submission of unsolicited proposals that contribute to its mission objectives. It considers proposals in all areas of energy and energy-related research and development with an emphasis on long-term, high-risk, high-payoff technologies. According to DOE, an unsolicited proposal may be accepted by DOE if it:

- "Demonstrates a unique and innovative concept, or demonstrates a unique capability of the submitter;
- Offers a concept or services not otherwise available to the Government;
- Does not resemble the substance of a recent, current or pending competitive solicitation/announcement; and,
- Is independently originated by the proposer without Government supervision.
- Limited to 25 pages not including appendices."

In order to determine the relevance of your proposed research to DOE's program objectives, or whether it fits any current or planned competitive DOE announcements/solicitations, DOE recommends that you **submit, by e-mail (preferred) or in writing, a structured/detailed technical abstract/summary of at least 500 words.** The abstract, DOE notes, "should briefly describe your proposed research. If your abstract does not include the (3) criteria below, it will be returned for re-submittal.

Abstract Sample format: (3 separate paragraphs)

    1. What you propose to do and how (summary of at least 500 words)
    2. Why it is beneficial to DOE
    3. How the technology meets DOE's mission (www.doe.gov/about/index.htm)."

        DOE notes that "The National Energy Technology Laboratory (NETL), Pittsburgh Office has operational responsibility for the DOE Unsolicited Proposal (USP) Program. **All unsolicited proposals should be forwarded by Email to John N. Augustine** at DOEUSP@NETL.DOE.GOV who will serve as the single point of contact for all Department of Energy (DOE) unsolicited proposals. Please direct all unsolicited proposals, abstracts and correspondence to: **John N. Augustine**, Mail Stop 921-107 Unsolicited Proposal Manager U.S. Department of Energy National Energy Technology Laboratory 626 Cochrans Mill Road P.O. Box 10940 Pittsburgh, PA 15236-0940; Email: DOEUSP@NETL.DOE.GOV "

        The various DOE program divisions and staff offices that consider unsolicited proposals and their respective areas of responsibility are *discussed at length in this document* and should be consulted as a first step in developing an unsolicited proposal to DOE.

Communications on Interdisciplinary Team Grants

Reprinted from December 15, 2016
By **Mike Cronan**, co-publisher

"*What we've got here is failure to communicate.*" This iconic quote directed by the prison warden to a prisoner that refused to be broken played by Paul Newman in the classic 1967 film *Cool Hand Luke* could well represent the post mortem pronouncement on an unfunded interdisciplinary team proposal. ***After a fundable idea, team communications on interdisciplinary proposals is an essential ingredient for success***. [Author's note: This is even more important now with the current focus on convergent research than it was when this article was written in 2016.]

Many large proposals cry out for a project communications plan as part of the management strategy. Such a plan oils the operational interactions among numerous team members often at collaborating institutions; promotes consensus-based decision making; and ensures the timely and orderly distribution of important information across the project team. In many ways, creating a communications plan for large-team proposals is as important as creating one for a funded project, and perhaps more so, since poor communications can significantly impact the funding decision in a negative way.

It is often the case in large-team proposals that no matter how well the proposal development and writing has been planned, end game stressors prior to the due date can change an orderly process into an asymmetrical one. This can result in the last several days prior to the due date becoming increasingly disorganized, at least in the perception of those responsible for producing the final research narrative and project budget. Those in research offices likely have "war stories" of this happening, perhaps putting them in mind of the William Butler Yeats poem *The Second Coming*, where he writes "*Things fall apart; the centre cannot hold; **Mere anarchy is loosed upon the world***." It is left to literary scholars to determine if Yeats wrote this poem in frustration after having a bad experience on a large team grant.

Single-institution team proposals are challenging enough, for example, but multi-institutional team proposals often reach another order of magnitude. They present challenges related to team dynamics and multiple institutional administrative protocols, especially when they are structured like an NSF collaborative proposal requiring multiple coordinated/concurrent submittals across numerous institutions. Regardless, the challenges of organizing a successful proposal development effort increase exponentially as a function of team size and institutional partners.

In these instances, one entry point into proposal development disorder, or perhaps the "anarchy" Yeats describes, arises in the final production stages of the research narrative and budget. Under deadline pressures, these final stages transform what should be a sequential and orderly process of information exchange into a chaotic, asymmetric process among participants. In short, this is where the "failure to communicate" enters the process, which most often means the failure of ***coordinated communications***.

One of the more challenging forms of anarchy to be addressed by those responsible for finalizing the project narrative comes with producing numerous, daily draft iterations of the

research narrative. ***Numerous iterations converging on narrative perfection are a fundamental requirement of funding success, but it can't be achieved without some major stressors***. These stressors, for example, include end game narrative revising to meet page limits; rewriting narrative sections to better hone the vision, goals, and objectives of the project; improving tables and figures and ensuring they match the research narrative; and maintaining a consensus-based narrative revision process in a compressed timeline in a large-team environment.

In the final days of a proposal, consensus-based decision making on draft iterations (edits, rewrites, comments, visuals, etc.) ***occurs in a significantly compressed timeline for response turnaround***. This is difficult because the principal investigators and senior project personnel typically have other time commitments as well, e.g., teaching, service, graduate students, research labs, etc., that compete for their time. Some members of the research team may be able to respond quickly and others not to the orderly flow of numerous draft iterations.

In these instances, one common cause of disorder occurs when, on a daily basis, numerous participants in the project respond to numerous iterations of the project narrative and ***too often in an asynchronous manner,*** i.e., one team member responds to Draft 8 while others proceed to Draft 9 or even to Draft 6. The proposal equivalent to the adage "*a day late and a dollar short*" is "*a day late and a draft short.*"

It may be that fewer than 24 hours separates Draft 9 from Draft 6, but in end game proposal submissions, ***24 hours is an eternity***. Moreover, when there is no discussion on naming each subsequent draft iteration, team members often make track-edit changes and then re-name the new file "*Draft 9 v.2*" or "*Draft 9.5*" until your head is swimming in a "Dewey Decimal System" of multiply named and numbered narrative drafts.

There is likely no perfect inoculation against end game stressors, but they can be significantly ameliorated. For example, all contributors can continuously update proposal drafts to reflect nearness to the due date by putting in place team communications protocols known to all in making changes to the current draft. This protocol names one person as the keeper of the master narrative draft. This is the only person who can make changes to the master document based on a series of track-edit revisions offered by team members. This ensures that all team members know the protocol for naming each new draft iteration, and it gradually reduces the number of team members permitted to suggest draft revisions and re-writes to those whose narrative contributions are critical to the proposal's success. A day or two prior to the due date, the finalizing of the research narrative needs to be placed in the hands of the PI and a few key team members.

The bottom line here is to keep in mind that your original proposal development plan changes over time and as the due date draws near it is helpful to ***reexamine the plan to ensure it is sufficiently organized to withstand the many stressors related to team communications that come with finalizing the research narrative and the budget***.

Research Grant Writing Web Resources
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Sample Grant Applications, Summary Statements, and More

Wednesday, May01, 2019 ,2:15: 12PM |NIH Staff

If you are new to writing grant applications, sometimes seeing how someone else has presented their idea can help as you are developing your own application. With the gracious permission of successful investigators, the National Institute of Allergy and Infectious Diseases (NIAID) makes available examples of funded R01, R03, R15, R21, SBIR/STTR, K, and F applications, summary statements, sharing plans, leadership plans, and more. When referencing these resources, it is important to remember:

- These applications were developed using the application forms and instructions that were in effect at the time of their submission. Forms and instructions change regularly. Read and carefully follow the instructions in the funding opportunity announcement to which you are responding and the current application instructions carefully.
- The best way to present your science may differ substantially from the approach taken by those who wrote the example applications. Seek feedback on your draft application from mentors and others.
- Talk to an NIH program officer in your area of science for advice about the best type of grant program and the Institute or Center that might be interested in your idea.

Check out the NIAID's Sample Applications and More.

Redesigned eRA Website Provides New Resources

Wednesday, May01, 2019 ,9:44: 18AM |NIH Staff

A newly revamped eRA website that serves as an informational gateway to applicants, grantees and reviewers was launched April 30. The site provides new and updated 'how-to' information on navigating eRA systems like eRA Commons, ASSIST, IAR, xTrain and xTRACT; intuitive navigation; and improved accessibility.

Key highlights

- Main screenshots of systems added to help figure out process at a glance
- eRA Commons/ASSIST log-in buttons moved to prominent location on upper right-hand corner of home page
- Hover drop-down menus added to menu topics on home page to provide a glimpse of inside content at a glance
- New categories of information and updated 'how-to' content

Check out the website and a video that walks you through the highlights. Please send any questions or comments to eRACommunications@mail.nih.gov.

Educational Grant Writing Web Resources

DoED Jacob Javits Gifted and Talented Students Education Program

Evaluation Capacity Building for Informal STEM Education: Working for Success Across the Field
"Informal STEM education (ISE) organizations, especially museums, have used evaluation productively but unevenly. We argue that advancing evaluation in ISE requires that evaluation capacity building (ECB) broadens to include not only professional evaluators but also other professionals such as educators, exhibit developers, activity facilitators, and institutional leaders. We identify four categories of evaluation capacity: evaluation skill and knowledge, use of evaluation, organizational systems related to conducting or integrating evaluation, and values related to evaluation. We studied a field-wide effort to build evaluation capacity across a network of organizations and found it important to address individuals' evaluation capacities as well as capacities at the organizational level. Organizational factors that support ECB included redundancy of evaluation capacities across multiple people in an organization, institutional coherence around the value of evaluation, and recognition that ECB can be led from multiple levels of an organizational hierarchy. We argue that the increasing emphasis on evaluation in the ISE field represents an exciting opportunity and that, with targeted strategies and investments, ECB holds great promise for the future of ISE and ISE evaluation."

English Learners in STEM Subjects
Transforming Classrooms, Schools, and Lives (2018)
The imperative that all students, including English learners (ELs), achieve high academic standards and have opportunities to participate in science, technology, engineering, and mathematics (STEM) learning has become even more urgent and complex given shifts in science and mathematics standards. As a group, these students are underrepresented in STEM fields in college and in the workforce at a time when the demand for workers and professionals in STEM fields is unmet and increasing. However, English learners bring a wealth of resources to STEM learning, including knowledge and interest in STEM-related content that is born out of their experiences in their homes and communities, home languages, variation in discourse practices, and, in some cases, experiences with schooling in other countries.

English Learners in STEM Subjects: Transforming Classrooms, Schools, and Lives examines the research on ELs' learning, teaching, and assessment in STEM subjects and provides guidance on how to improve learning outcomes in STEM for these students. This report considers the complex social and academic use of language delineated in the new mathematics and science standards, the diversity of the population of ELs, and the integration of English as a second language instruction with core instructional programs in STEM.

Agency Research News

Dear Colleague Letter: Research Opportunities Related to Coastlines and People (CoPe)

With this Dear Colleague Letter (DCL), the National Science Foundation (NSF) Directorates for Geosciences (GEO), Social, Behavioral and Economic Sciences (SBE), Biological Sciences (BIO), Engineering (ENG), Education and Human Resources (EHR) and the Office of Integrative Activities (OIA) announce their intent to support Research Coordination Networks (RCNs), a select type of Early-Concept Grants for Exploratory Research (EAGER), conferences, and Non-academic Research Internships for Graduate Students (INTERN) supplements that relate to Coastlines and People (CoPe). NSF first publicly explored this topic with 4 workshops held in September 2018. In those workshops, participants were challenged to think about the interdisciplinary science necessary to advance our understanding of coastlines and people, the ways that broadening participation can be integral to research in this area, and what type of research infrastructure, referred to as "hubs", is needed to enable both interdisciplinary science and broadening participation efforts. See coastlinesandpeople.org for the products of these workshops.

Through CoPe, NSF is interested in supporting projects to build capacity and explore research focused on understanding the impacts of coastal environmental variability and natural hazards on populated coastal regions. CoPe projects should explore the complex interface between coastal natural processes, geohazards, people and their natural and built environments. CoPe will include coastal variability and hazards on a range of spatial and temporal scales, from local to global and seconds to millenia to put current changes in context of pre-anthropogenic changes. The landscape of individuals interested in coastal research is diverse, including but not limited to researchers, decision-makers, practitioners (individuals dealing with the day to day operations in coastal areas), and stakeholders (communities impacted by coastal change). The following funding mechanisms are available to provide support for a spectrum of coastal interests from scientists to stakeholders, to develop partnerships and build the networks needed to delve more deeply into these ideas and/or explore novel ones, and to conduct small pilot projects related to CoPe.

Dear Colleague Letter: UKRI/BBSRC- NSF/BIO Lead Agency Opportunity in Bioinformatics, Microbiome, Quantum Biology and Synthetic Biology/Synthetic Cell

The US National Science Foundation (NSF) and the UK Research and Innovation (UKRI) have signed a Memorandum of Understanding (MOU) on Research Cooperation. The MOU provides an overarching framework to encourage collaboration between US and UK research communities and sets out the principles by which jointly supported activities might be developed. The MoU provides for a lead agency arrangement whereby proposals may be submitted to either NSF (via FastLane or Grants.gov) or UKRI (via Je-S). The NSF Directorate for Biological Sciences (NSF/BIO) and the UKRI Biotechnology and Biological Sciences Research Council (BBSRC) are pleased to announce new topical areas associated with the lead agency opportunity. The lead agency opportunity allows for reciprocal acceptance of merit review

through unsolicited mechanisms and its goal is to help reduce some of the current barriers to working internationally.

Dear Colleague Letter: Request for Information on Future Topics for the NSF Convergence Accelerator

This Request for Information (RFI) is issued in conjunction with NSF's 10 Big Ideas. NSF 19-050, Dear Colleague Letter, invited proposals for the NSF Convergence Accelerator Pilot. Track A1 of this pilot, *Open Knowledge Network*, relates to the Harnessing the Data Revolution (HDR) Big Idea. Track B1, *AI and Future Jobs*, and track B2, *National Talent Ecosystem*, relate to the Future of Work at the Human-Technology Frontier (FW-HTF) Big Idea. The purpose of this RFI is to seek input from industry, institutions of higher education (IHEs), non-profits, government entities, and other interested parties on future NSF Convergence Accelerator tracks within these two Big Ideas, within other Big Ideas, or on other topics that may not relate directly to a Big Idea but that may have national impact. Ideas suggested in response to this RFI should be similar in breadth to tracks A1, B1, and B2, which are broad enough to each support a set of related research teams working together as a cohort. This RFI does not invite research proposals, however this process may suggest topics for future funding opportunities. Proposers may separately submit conference proposals to refine these ideas.

The goals of the NSF Convergence Accelerator are to accelerate use-inspired convergence research in areas of national importance, and to initiate convergence team-building capacity around exploratory, potentially high-risk proposals within particular topics (tracks).

As a funder of research and education across most fields of science and engineering and with relationships with IHEs and funding agencies around the world, NSF is uniquely positioned to support this approach to accelerating discovery and innovation. The NSF Convergence Accelerator brings teams together to focus on grand challenges of national importance that require a convergence research approach. The teams are multidisciplinary and leverage partnerships; the tracks relate to a grand challenge problem and have a high probability of resulting in research deliverables that will benefit society within a fixed term. The NSF Convergence Accelerator is modeled on acceleration and innovation activities from the most forward-looking companies and institutions of higher education.

The NSF Convergence Accelerator supports fundamental research while encouraging rapid advances through partnerships that include, or will include, multiple stakeholders (e.g., industry, IHEs, non-profits, government entities, and others). The NSF Convergence Accelerator brings teams together in a cohort in which all are focused on a common research goal of national importance but may be pursuing many different approaches to that goal. The NSF Convergence Accelerator Pilot (NSF 19-050) consists of three tracks. Track A1, *Open Knowledge Network*, supports the development of a non proprietary shared knowledge infrastructure, allowing stored data to be located with the relationship to real-work objects understood at a semantic level. This track has a particular focus on exploiting publicly available U.S. Government and similar public datasets. Track A1 aligns with the HDR Big Idea. Track B1, *AI and Future Jobs*, supports the development of mechanisms that will connect workers with jobs of the future, such as predictive artificial intelligence tools, economic and labor market analyses of needed skills for future workplaces, and educational technologies

needed for adult learning. Track B2, *National Talent Ecosystem*, will help employers sustain continuous learning for dynamic, digitally-intensive work. This track will support the development of concepts, structures, and technologies such as learning environments, platforms, interfaces, or simulations, tools for analysis, assessment, or prediction, and vehicles for recruitment and engagement. Tracks B1 and B2 align with the FW-HTF Big Idea.

Research Development & Grant Writing News

Agency Reports, Workshops & Research Roadmaps
(Back to Page 1)

Reproducibility and Replicability in Science

One of the pathways by which the scientific community confirms the validity of a new scientific discovery is by repeating the research that produced it. When a scientific effort fails to independently confirm the computations or results of a previous study, some fear that it may be a symptom of a lack of rigor in science, while others argue that such an observed inconsistency can be an important precursor to new discovery.

Concerns about reproducibility and replicability have been expressed in both scientific and popular media. As these concerns came to light, Congress requested that the National Academies of Sciences, Engineering, and Medicine conduct a study to assess the extent of issues related to reproducibility and replicability and to offer recommendations for improving rigor and transparency in scientific research.

Reproducibility and Replicability in Science defines reproducibility and replicability and examines the factors that may lead to non-reproducibility and non-replicability in research. While reproducibility is straightforward and should generally be expected, the report says, replicability is more nuanced, and in some cases a lack of replicability can aid the process of scientific discovery. This report provides recommendations to researchers, academic institutions, journals, and funders on steps they can take to improve reproducibility and replicability in science.

The Gulf Research Program Annual Report 2018

Each year, the Gulf Research Program (GRP) produces an annual report to summarize how funds were used. These reports review accomplishments, highlight activities, and, over time, will assess metrics to determine how the program is progressing in accomplishing its goals. The 2018 annual report is the fifth report in this series. The GRP is an independent, science-based program founded in 2013. Through grants, fellowships, and other activities, it seeks to enhance oil system safety and the protection of human health and the environment in the Gulf of Mexico region and other areas along the U.S. outer continental shelf with offshore oil and gas operations. This report captures key developments and successes in 2018. The GRP continues to build on its past work and seeks to learn, think about, and plan for how and where it can have the greatest cumulative and lasting impacts.

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New Funding Opportunities
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Content Order
New Funding Posted Since April 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 work as well.]

New Funding Solicitations Posted Since April 15 Newsletter

Army Applications Lab Broad Agency Announcement For Disruptive Applications

Supplemental and Alternative Crops (SAC)
The Supplemental and Alternative Crops (SAC) Competitive Grants Program will support projects that lead to expanded adaptation and increased acres in the United States of canola grown for oil and industrial hemp grown for value added products. The SAC supports the breeding, testing, and development of superior performing canola and industrial hemp varieties and production practices that result in improved cost efficiencies, reduced grower risks, and wider use in production systems. Research results and technology developed are expected to be rapidly transferred to producers and other users through effective extension outreach and other engagement efforts. **Due May 31.**

New Technologies for Ag Extension (NTAE)
The New Technologies for Ag Extension (NTAE) Competitive Grants Program RFA for fiscal year (FY) 2019 provides funding for a cooperative agreement that contributes to "Enhancing Electronic Extension (E3)" a national web-based information and education delivery system. E3 engages land-grant institutions and the Cooperative Extension Service to provide objective, scientific information to the public that answer questions and guide decisions. By creating web-based access to high-quality, non-duplicative, research-based information, E3 can help better serve the needs of the public seeking real-time information. In FY 2019, NIFA plans to support E3 strategic direction in providing leadership for innovation and technology that advances education through the promotion of CES growth and competencies. **Due June 6.**

EHR Core Research (ECR): Building Capacity in STEM Education Research (ECR: BCSER)
ECR's Building Capacity for STEM Education Research (ECR: BCSER) solicitation supports projects that build individuals' capacity to carry out high quality STEM education research that will

enhance the nation's STEM education enterprise and broaden the pool of researchers that can conduct fundamental research in STEM learning and learning environments, broadening participation in STEM fields, and STEM workforce development.

Specifically, ECR: BCSER supports activities that enable early and mid-career researchers to acquire the requisite expertise and skills to conduct rigorous fundamental research in STEM education. ECR: BCSER seeks to fund research career development activities on topics that are relevant to qualitative and quantitative research methods and design, including the collection and analysis of new qualitative or quantitative data, secondary analyses using extant datasets, or meta-analyses.

This career development may be accomplished through investigator-initiated projects or through professional development institutes that enable researchers to integrate methodological strategies with theoretical and practical substantive issues in STEM education. Early and mid-career faculty new to STEM education research, particularly underrepresented minority faculty and faculty at minority-serving and two-year institutions, are encouraged to submit proposals. **Due June 7**.

[Advanced Building Construction with Energy Efficient Technologies & Practices (ABC)](#)
The U.S. Department of Energy's (DOE) Building Technologies Office (BTO) Advanced Building Construction with Energy-Efficient Technologies & Practices (ABC) FOA supports research and development of solutions that can be applied to many segments of the building sector, including existing and new buildings, residential and commercial, and across multiple climate zones. BTO is seeking applications aimed at developing deep energy retrofit and new construction technologies that holistically tackle a combination of envelope, heating, cooling, water heating, and ventilation issues, and hold appeal for both building owners and occupants. BTO is interested in three topic areas: Topic 1: Integrated Building Retrofits Topic 2: New Construction Technologies Topic 3: Advanced Technology Integration For questions and answers pertaining to this FOA, please reference the DE-FOA-0002099 ABC 2019 FAQ Log at https://eere-exchange.energy.gov Informational Webinar: The Informational Webinar mentioned in the FOA is **scheduled for May 13, 2019 at 1:30PM ET.**
https://doe.webex.com/doe/onstage/g.php?MTID=e0e763aac7daf6b2464e74ca4aebca3a3
Meeting number (access code): 909 669 402 Meeting password: 2019ABC The eXCHANGE system is currently designed to enforce hard deadlines for Concept Paper and Full Application submissions. **Concept papers due June 10**.

[Agriculture and Food Research Initiative - Foundational and Applied Science Program](#)
The AFRI Foundational and Applied Science Program supports grants in *six AFRI priority areas to advance knowledge in both fundamental and applied sciences important to agriculture. 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*. Research-only, extension-only, and integrated research, education and/or extension projects are solicited in this Request for Applications (RFA). See Foundational and Applied Science RFA for specific details. **Various due dates for LOIs beginning June 19**—see schedule in RFA).

Chemical Mechanisms To Address New Challenges In Air Quality Modeling

The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking applications proposing research to improve air quality models relevant to ozone, particulate matter (PM), regional haze, air toxics, and emerging pollutants. Specifically, this Request for Applications (RFA) is seeking research on the development of the component of an air quality model that represents the relevant atmospheric chemical reactions, which is known in this field of modeling as "the chemical mechanism." The RFA seeks research on:

> 1. Development of data, methods, and software tools for generating explicit chemical mechanisms that a) have a coherent and integrated treatment of gas, aerosol, aqueous, and heterogenous chemistry, b) can be easily updated to reflect evolving kinetic, mechanistic, and theoretical knowledge and understanding, and c) are applicable to a wide range of atmospheric concentration regimes and environmental conditions;
> 2. Development and evaluation of algorithms, numerical techniques and software tools to reduce (i.e., simplify) detailed, integrated chemical mechanisms into application-specific condensed mechanisms appropriate for use in global and regional air quality models; and
> 3. Applications of new condensed mechanisms generated for broad applications or for specific conditions in global and regional air quality models to investigate air quality research topics relevant to air quality management in the United States. Due June 24.

The focus of this solicitation is on the development of chemical mechanisms relevant over multiple regimes (a wide range of concentrations, oxidant ratios, and temperatures, and multiple phases) and spatiotemporal scales within a framework that can generate mechanisms for current air quality assessments and have the flexibility to generate updated mechanisms as understanding of atmospheric chemistry evolves and new concerns emerge. **Due June 24.**

Early Career: Chemical Mechanisms to Address New Challenges in Air Quality Modeling Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking applications proposing research to improve air quality models relevant to ozone, particulate matter (PM), regional haze, air toxics, and emerging pollutants. Specifically, this Request for Applications (RFA) is seeking research on the development of the component of an air quality model that represents the relevant atmospheric chemical reactions, which is known in this field of modeling as "the chemical mechanism." **Due June 24**.

Industry Partnerships for Cybersecurity of Energy Delivery Systems Research, Development, and Demonstration

The objective of this Announcement is to enhance the reliability and resilience of the energy infrastructure through innovative research, development and demonstration cybersecurity solutions. This Announcement includes three topic areas. Topic Area 1 is Real Time Intrusion for Energy Delivery Control Systems. Topic Area 2 is Self Healing Energy Delivery Control Systems. Topic Area 3 is Innovative Technologies that Enhance Cybersecurity in the Energy Sector. **Due July 8.**

Low Cost, Efficient Treatment Technologies For Produced Water

The objective of this Funding Opportunity Announcement (FOA) is to accelerate the development of potential process modifications, combinations or enhancements, or altogether new alternative processes and technologies--including techno-economic analyses--that could achieve significant reduction in the quantity of produced water going to deep, underground injection well facilities. **Due July 10.**

FY19 Bioenergy Technologies Office Multi-Topic Funding Opportunity Announcement

This Funding Opportunity Announcement (FOA) will provide funding to address the highest priority R&D areas within biofuel technologies, bioproducts, and biopower. It includes Areas of Interest (AOIs) from all five BETO programs: Feedstock Supply and Logistics; Advanced Algal Systems; Conversion; Advanced Development and Optimization; and Sustainability and Strategic Analysis. Each AOI supports BETO's objectives to reduce the minimum selling price of drop-in biofuels, lower the cost of biopower, enable high-value products from biomass or waste resources, and improve the quality of feedstock characterization and reliability of biorefinery operations. The full FOA is posted on the EERE Exchange website at https://eere-exchange.energy.gov. To apply to this FOA, Applicants must register with and submit application materials through EERE Exchange, EERE's online application portal. Information on where to submit questions regarding the content of the announcement and where to submit questions regarding submission of applications is found in the full FOA posted on the EERE Exchange website. **Due July 22**.

Physics Frontiers Centers (PFC)

The Physics Frontiers Centers (PFC) program supports university-based centers and institutes where the collective efforts of a larger group of individuals can enable transformational advances in the most promising research areas. The program is designed to foster major breakthroughs at the intellectual frontiers of physics by providing needed resources such as combinations of talents, skills, disciplines, and/or specialized infrastructure, not usually available to individual investigators or small groups, in an environment in which the collective efforts of the larger group can be shown to be seminal to promoting significant progress in the science and the education of students. Activities supported through the program are in all sub-fields of physics within the purview of the Division of Physics: atomic, molecular, optical, plasma, elementary particle, nuclear, particle astro-, gravitational, and biological physics. Interdisciplinary projects at the interface between these physics areas and other disciplines and physics sub-fields may also be considered, although the bulk of the effort must fall within one of those areas within the purview of the Division of Physics. The successful PFC activity will demonstrate: (1) the potential for a profound advance in physics; (2) creative, substantive activities aimed at enhancing education, diversity, and public outreach; (3) potential for broader impacts, e.g., impacts on other field(s) and benefits to society; (4) a synergy or value-added rationale that justifies a center- or institute-like approach. **Preliminary due August 1; full January 30.**

2019 NASA Teams Engaging Affiliated Museums and Informal Institutions (TEAM II)
National Aeronautics and Space Administration

NASA's Office of STEM Engagement, collaborating closely with the Mission Directorates,and also in cooperation with NASA Headquarters' Office of Communications and Mission Support Directorate, solicits proposals led by Informal Education Institutions (IEIs) to provide inquiry- or experiential-based educational opportunities with direct alignment with major NASA missions for students and the public. These opportunities shall utilize partnerships with major networks of other IEIs, youth-serving organizations, libraries, and/or K-12 schools along with commercial entities,higher education institutions, and/or other agencies that support Federal STEM education goals. NASA's work in STEM Engagement is focused on ultimately serving students. It is recognized that providing support and resources to educators and educational institutions are vital vehicles through which to effectively engage students. Through this solicitation, NASA seeks to enhance the ability of IEIs and partners to deliver and participate in NASA-based activities, and to increase the capacity of institutions to utilize NASA resources and to provide students with the opportunity to contribute to NASA's mission using innovative tools and platforms. In particular, this solicitation seeks projects that feature the most current NASA space exploration, missions, engineering, and technologies to support NASA STEM Engagement objectives, strategies, and outcomes.

NASA TEAM II seeks to provide authentic STEM engagement opportunities for students and for their learning support systems of informal and formal educators that also support NASA STEM Engagement Core Principles, Objectives, and Strategies:

- Provide STEM engagement activities aligned with NASA mission-driven needs and priorities;
- Leverage NASA missions, content, people, and facilities to provide experiential authentic STEM opportunities that encourage innovation, critical thinking, and problem-solving skills;
- Use or develop evidenced-based educational strategies in designing and implementing the project and address state and local needs;
- Provide a measurable impact on learner interest in and positive attitudes towards STEM topics and improve self-perception of the learner's ability to participate in STEM;
- Enhance diversity and inclusion by better serving groups historically underrepresented and under served in STEM fields; and
- Utilize partnerships and regional and national networks of STEM- and STEM education-related IEIs to magnify and maximize reach and impact;

For this solicitation, informal education projects shall target STEM engagement for youth (particularly those of upper elementary and middle school age, in grades 4-8), and their support systems of families and informal and formal educators and institutions. **Due August 13**.

Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII)
The NSF Directorate for Computer and Information Science and Engineering (CISE) seeks to award grants intended to support research independence among early-career academicians who specifically lack access to adequate organizational or other resources. It is expected that funds obtained through this program 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 five years after completion of their PhD. Applicants for this program may not yet have received any other grants or contracts in the 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 as noted below. Serving as co-PI, Senior Personnel, Postdoctoral Fellow, or other Fellow does not count against this eligibility rule. Importantly, the CRII program seeks to provide essential resources to enable early-career PIs to launch their research careers. For the purposes of this program, CISE defines "essential resources" as those that (a) the PI does not otherwise have, including through organizational or other funding and (b) are critical for the PI to conduct early-career research that will enable research independence. In particular, this program is not appropriate for PIs who already have access to resources to conduct any early-career research. **Due August 14.**

[Agriculture and Food Research Initiative - Education and Workforce Development](#)
The Agriculture and Food Research Initiative - Education and Workforce Development (EWD) focuses on developing the next generation of research, education, and extension professionals in the food and agricultural sciences. In FY 2019, EWD invites applications in five areas: professional development for agricultural literacy; training of undergraduate students in research and extension; fellowships for predoctoral candidates; fellowships for postdoctoral scholars, and a brand new program for agricultural workforce training. **Due August 22.**

[Minerva Research Initiative](#)
The Minerva Research Initiative (Minerva) emphasizes questions of strategic importance to U.S. national security policy. It seeks to increase the Department's intellectual capital in the social sciences and improve its ability to address future challenges and build bridges between the Department and the social science community. Minerva brings together universities and other research institutions around the world and supports multidisciplinary and cross-institutional projects addressing specific interest areas determined by the Department of Defense. The Minerva program aims to promote research in specific areas of social science and to promote a candid and constructive relationship between DoD and the social science academic community. **Due September 26**.

URL Links to New & Open Funding Solicitations
Links verified June 8, 2018

- [SAMHSA FY 2017 Grant Announcements and Awards](#)
- [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](#)
- [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)**](#)
- [**NASA Open Solicitations**](#)
- [**CDMRP FY 2018 Funding Announcements**](#)
- [**DOE/EERE Funding Opportunity Exchange**](#)
- [**New Funding Opportunities at NIEHS (NIH)**](#)
- [**National Human Genome Research Institute Funding Opportunities**](#)
- [**Office of Naval Research Currently Active BAAs**](#)
- [**HRSA Health Professions Open Opportunities**](#)
- [**Foundation Center RFP Weekly Funding Bulletin**](#)

Solicitations Remaining Open from Prior Issues of the Newsletter

[Harnessing the Data Revolution (HDR): Institutes for Data-Intensive Research in Science and Engineering - Ideas Labs](#)

In 2016, the National Science Foundation (NSF) unveiled a set of "Big Ideas," 10 bold, long-term research and process ideas that identify areas for future investment at the frontiers of science and engineering (see https://www.nsf.gov/news/special_reports/big_ideas/index.jsp). The Big Ideas represent unique opportunities to position our Nation at the cutting edge of global science and engineering leadership by bringing together diverse disciplinary perspectives to support convergence research. As such, when responding to this [solicitation](#), even though proposals must be submitted to the Directorate for Computer & Information Science & Engineering/Office of Advanced Cyberinfrastructure(CISE/OAC), once received, the proposals will be managed by a cross-disciplinary team of NSF Program Directors. NSF's [Harnessing the Data Revolution (HDR) Big Idea](#) is a national-scale activity to enable new modes of data-driven discovery that will allow fundamental questions to be asked and answered at the frontiers of science and engineering. Through this NSF-wide activity, HDR will generate new knowledge and understanding, and accelerate discovery and innovation. The HDR vision is realized through an interrelated set of efforts in:

- Foundations of data science;
- Algorithms and systems for data science;
- Data-intensive science and engineering;
- Data cyberinfrastructure; and
- Education and workforce development.

Each of these efforts is designed to amplify the intrinsically multidisciplinary nature of the emerging field of data science. The HDR Big Idea will establish theoretical, technical, and ethical frameworks that will be applied to tackle data-intensive problems in science and engineering, contributing to data-driven decision-making that impacts society. This solicitation describes one or more Ideas Lab(s) on Data-Intensive Research in Science and Engineering (DIRSE) as part of the HDR Institutes activity. **Due June 19**.

[Science and Technology Centers: Integrative Partnerships](#)

The Science and Technology Centers (STC): Integrative Partnerships program supports exceptionally innovative, complex research and education projects that require large-scale,

long-term awards. STCs focus on creating new scientific paradigms, establishing entirely new scientific disciplines and developing transformative technologies which have the potential for broad scientific or societal impact. STCs conduct world-class research through partnerships among institutions of higher education, national laboratories, industrial organizations, other public or private entities, and via international collaborations, as appropriate. They provide a means to undertake potentially groundbreaking investigations at the interfaces of disciplines and/or highly innovative approaches within disciplines. STCs may involve any area of science and engineering that NSF supports. STC investments support the NSF vision of creating and exploiting new concepts in science and engineering and providing global leadership in research and education.

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

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

Centers must undertake activities that facilitate knowledge transfer, i.e., the exchange of scientific and technical information with the objective of disseminating and utilizing knowledge broadly in multiple sectors. Examples of knowledge transfer include technology transfer, providing key information to public policy-makers, or dissemination of knowledge from one field of science to another.

- **Preliminary proposals due June 25, 2019**
- Invited list informed, late October, 2019
- Invited full proposals due January 27, 2020
- Notification of invitation for site visit, late June, 2020
- Site visits, September 1-October 30, 2020
- Declined proposers informed, and recommended awards announced, early February, 2021

Materials Research Science and Engineering Centers (MRSEC)
There are a few minor differences between this and the previous (NSF 16-545) solicitation. These include:
1. Interdisciplinary Research Groups topics focusing on the NSF Big Ideas are included as suggested research topics;
2. For both preliminary and full proposals, MRSEC participant definitions are clarified and made uniform: it changed from using senior investigator, senior participants and others to clearer definitions for supported and unsupported Participants including Primary and Secondary Participants and more (see text);

3. For Preliminary proposals, only biographical sketches for those individuals listed in the NSF Proposal Cover Sheet (up to five) are required; other biographical sketches will not be accepted;
4. For both Preliminary and Full Proposal, Results from Prior NSF Support can only be reported for individuals, up to five, that appear on the NSF Cover Sheet; results for other participants must not be included;
5. Proposers are encouraged to contact the Program Director(s) prior to submission to ascertain that the Interdisciplinary Research Group (IRG) proposed research fits the Division of Materials Research (DMR) portfolio.

The Materials Research Science and Engineering Centers (MRSECs) program provides sustained support of interdisciplinary materials research and education of the highest quality while addressing fundamental problems in science and engineering. Each MRSEC addresses research of a scope and complexity requiring the scale, synergy, and multidisciplinarity provided by a campus-based research center. The MRSECs support materials research infrastructure in the United States, promote active collaboration between universities and other sectors, including industry and international organizations, and contribute to the development of a national network of university-based centers in materials research, education, and facilities. A MRSEC may be located at a single institution, or may involve multiple institutions in partnership, and is composed of up to three Interdisciplinary Research Groups, IRGs, each addressing a fundamental materials science topic aligned with the Division of Materials Research, DMR. **Preliminary due June 24; full by invitation November 26.**

W81XWH-19-TBDRP-CDA DOD [Tick-Borne Disease, Career Development Award](#) Department of Defense Dept. of the Army -- USAMRAA
The FY19 TBDRP Career Development Award supports independent, early-career investigators in their efforts to conduct impactful research with the mentorship of an experienced tick-borne diseases researcher (i.e., the Mentor), thus providing an opportunity to obtain the funding, guidance, and experience necessary for productive, independent careers at the forefront of tick-borne diseases research. This award supports impactful research projects with an emphasis on discovery that may be translational in nature, but are not clinical trials. Under this award mechanism, the early-career investigator is considered the Principal Investigator (PI), and the application should focus on the PI's research and career development. It should be clear that the proposed research is intellectually designed by the PI and not a product of the Mentor. Preliminary data are not required. However, logical reasoning and a sound scientific rationale for the proposed research must be demonstrated. **Due August 22**.

[**DOD Tick-Borne Disease, Investigator-Initiated Research Award**](#)
The FY19 TBDRP Investigator-Initiated Research Award (IIRA) intends to support highly rigorous, high-impact studies that have the potential to make important contributions to Lyme disease and other tick-borne diseases research, patient care, and/or quality of life. This award mechanism promotes a wide range of research from basic through translational, including preclinical studies in animal models or human subjects, as well as correlative studies associated with an existing clinical trial to establish proof-of-principle for further development in future studies. Applications should include a well-formulated, testable hypothesis based on strong

scientific rationale that is established through logical reasoning, preliminary data, and critical review and analysis of the literature. Applications should articulate both the short- and long-term impact of the proposed research. High-impact research will, if successful, significantly advance Lyme disease and/or other tick-borne diseases research, patient care, and/or quality of life. **Due August 22.**

DOD Tick-Borne Disease, Idea Award

The FY19 TBDRP Idea Award intends to support conceptually innovative, high-risk/potentially high-reward research in the early stages of development that could lead to critical discoveries or major advancements that will accelerate progress in improving outcomes for individuals affected by Lyme disease and/or other tick-borne illnesses. This award mechanism promotes new ideas that represent innovative approaches to Lyme disease and other tick-borne diseases research and have the potential to make an important contribution toward the TBDRP mission. Applications should include a well-formulated, testable hypothesis based on strong scientific rationale that is established through inferential reasoning and/or critical review and analysis of the literature. Innovative research may introduce a new paradigm, challenge existing paradigms, look at existing problems from new perspectives, or exhibit other uniquely creative qualities that may include high-risk/potentially high-gain approaches to Lyme disease and other tick-borne diseases research. Research that is merely an incremental advance (the next logical step) is not considered innovative. **Due August 22**.

FY 2020 Department of Defense Multidisciplinary Research Program of the University Research Initiative

This MURI competition is open only to, and proposals are to be submitted only by, U.S. institutions of higher education (universities) with degree-granting programs in science and/or engineering, including DoD institutions of higher education. To the extent that it is a part of a U.S. institution of higher education and is not designated as a Federally Funded Research and Development Center (FFRDC), a University Affiliated Research Center (UARC) or other University Affiliated Laboratory (UAL) is eligible to submit a proposal to this MURI competition and/or receive MURI funds. Ineligible organizations (e.g., industry, DoD laboratories, FFRDCs, and foreign entities) may collaborate on the research but may not receive MURI funds directly or via subaward. When additional funding for an ineligible organization is necessary to make the proposed collaboration possible, such funds may be identified via a separate proposal from that organization. This supplemental proposal shall be attached to the primary MURI proposal and will be evaluated in accordance with the MURI review criteria by the responsible Research Topic Chief. If approved, the supplemental proposal may be funded using non-MURI or non-Government funds. **Due September 13**.

Agriculture and Food Research Initiative Competitive Grants Program

Applications to the FY 2019 Agriculture and Food Research Initiative - Sustainable Agricultural Systems (SAS) Request for Applications (RFA) must focus on approaches that promote transformational changes in the U.S. food and agriculture system within the next 25 years. NIFA seeks creative and visionary applications that take a systems approach, and that will significantly improve the supply of abundant, affordable, safe, nutritious, and accessible food,

while providing sustainable opportunities for expansion of the bioeconomy through novel animal, crop, and forest products and supporting technologies. These approaches must demonstrate current and future social, behavioral, economic, health, and environmental impacts. Additionally, the outcomes of the work being proposed must result in societal benefits, including promotion of rural prosperity and enhancement of quality of life for those involved in food and agricultural value chains from production to utilization and consumption. **Due September 26.**

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.]

FA9550-18-S-0003 Research Interests of the Air Force Office of Scientific Research
AFOSR plans, coordinates, and executes the Air Force Research Laboratory's (AFRL) basic research program in response to technical guidance from AFRL and requirements of the Air Force. Additionally, the office fosters, supports, and conducts research within Air Force, university, and industry laboratories; and ensures transition of research results to support U.S. Air Force needs. The focus of AFOSR is on research areas that offer significant and comprehensive benefits to our national war fighting and peacekeeping capabilities. These areas are organized and managed in two scientific Departments: Engineering and Information Science (RTA) and Physical and Biological Sciences (RTB). The research activities managed within each Department are summarized in this section. **Open Until Superseded**.

PAR-16-242 Bioengineering Research Grants (BRG) (R01) Department of Health and Human Services National Institutes of Health
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.**

BAA-RQKD-2014-0001 Open Innovation and Collaboration Department of Defense Air Force -- Research Lab
Open innovation is a methodology to capitalize on diverse, often non-traditional talents and insights, wherever they reside, to solve problems. Commercial industry has proven open innovation to be an effective and efficient mechanism to overcome seemingly impossible technology and/or new product barriers. AFRL has actively and successfully participated in

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

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.**

FY 2019 Continuation of Solicitation for the Office of Science Financial Assistance Program
Open to September 30.

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.**

Army Research Office Broad Agency Announcement for Basic and Applied Scientific Research
This BAA sets forth research areas of interest to the ARO. This BAA is issued under FAR 6.102(d)(2), which provides for the competitive selection of basic and applied research proposals, and 10 U.S.C. 2358, 10 U.S.C. 2371, and 10 U.S.C. 2371b, which provide the authorities for issuing awards under this announcement for basic and applied research. The definitions of basic and applied research may be found at 32 CFR 22.105. 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 to April 30, 2022.**

FA9453-17-S-0005 Research Options for Space Enterprise Technologies (ROSET)
The Air Force Research Laboratory (AFRL) Space Vehicle Directorate (RV) is interested in receiving proposals from all offerors to advance state of the art technology and scientific knowledge supporting all aspects of space systems including payload adapters, on-orbit systems, communications links, ground systems, and user equipment. Efforts will include basic and advanced research, advanced component and technology development, prototyping, and system development and demonstration and will span the range from concept and laboratory experimentation to testing/demonstration in a relevant environment. Specific tasks include design, development, analysis, fabrication, integration, characterization, testing/experimentation, and demonstration of hardware and software products. **Open to September 22, 2022.**

Broad Agency Announcement for the Army Rapid Capabilities Office
This Broad Agency Announcement (BAA), W56JSR-18-S-0001, is sponsored by the Army Rapid Capabilities Office (RCO). The RCO serves to expedite critical capabilities to the field to meet Combatant Commanders' needs. The Office enables the Army to experiment, evolve, and deliver technologies in real time to address both urgent and emerging threats while supporting acquisition reform efforts. The RCO executes rapid prototyping and initial equipping of capabilities, particularly in the areas of cyber, electronic warfare, survivability and positioning,

navigation and timing (PNT), as well as other priority projects that will enable Soldiers to operate and win in contested environments decisively. This BAA is an expression of interest only and does not commit the Government to make an award or pay proposal preparation costs generated in response to this announcement.

Questions concerning the receipt of your submission should be directed:
http://rapidcapabilitiesoffice.army.mil/eto/

Technical questions will be sent to the appropriate Technical Points of Contact (TPOC), topic authors, and/or Subject Matter Experts (SMEs) to request clarification of their areas of interest. No discussions are to be held with offerors by the technical staff after proposal submission without permission of the Army Contracting Command-Aberdeen Proving Ground (ACC-APG) Contracting Officer. **Open to March 23, 2023.**

[**W911NF-18-S-0005 U.S. Army Research Institute for the Behavioral and Social Sciences Broad Agency Announcement for Basic, Applied, and Advanced Research (Fiscal Years 2018-2023)**](#)

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) announces the ARI FY18-23 Broad Agency Announcement for Basic, Applied, and Advanced Scientific Research. This Broad Agency Announcement, 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 U.S. 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.

Those contemplating submission of a proposal are encouraged to contact the ARI Technical Point of Contact (TPOC) for the respective topic area cited in the BAA. If the R&D warrants further inquiry and funding is available, submission of a proposal will be entertained. The recommended three-step sequence is (1) telephone call to the ARI TPOC or responsible ARI Manager, (2) white paper submission, (3) full proposal submission. Awards may be made in the form of contracts, grants, or cooperative agreements. Proposals are sought from educational institutions, non-profit/not-for-profit organizations, and commercial organizations, domestic or foreign, for research and development (R&D) in those areas specified in the BAA. The U.S. Army Research Institute for the Behavioral and Social Sciences encourages Historically Black Colleges and Universities/Minority Serving Institutions (HBCU/MSI) and small businesses to submit proposals for consideration. Foreign owned, controlled, or influenced organizations are advised that security restrictions may apply that could preclude their participation in these efforts. Government laboratories, Federal Funded Research and Development Centers (FFRDCs), and US Service Academies are not eligible to participate as prime contractors or recipients.

However, they may be able to participate as subcontractors or Subrecipients (eligibility will be determined on a case by case basis). **Open to April 29, 2023.**

[FA8650-17-S-6001 Science and Technology for Autonomous Teammates (STAT)](#)
The objective of Science and Technology for Autonomous Teammates (STAT) program is to develop and demonstrate autonomy technologies that will enable various AF mission sets. This research will be part of Experimentation Campaigns in: 1 -Multi-domain Command and Control; 2-Intelligence, Surveillance, Recognizance (ISR) Processing Exploitation and Dissemination (PED); and 3- Manned-Unmanned combat Teaming to demonstrate autonomy capabilities to develop and demonstrate autonomy technologies that will improve Air Force operations through human-machine teaming and autonomous decision-making. The technology demonstrations that result from this BAA will substantially improve the Air Force's capability to conduct missions in a variety of environments while minimizing the risks to Airmen. The overall impact of integration of autonomous systems into the mission space will enable the Air Force to operate inside of the enemy's decision loop.

STAT will develop and apply autonomy technologies to enhance the full mission cycle, including mission planning, mission execution, and post-mission analysis. Particular areas of interest include multi-domain command and control, manned-unmanned teaming, and information analytics. The technology demonstrations that result from this BAA will substantially improve the Air Force's capability to conduct missions in a variety of environments while minimizing the risks to Airmen. The overall impact of integration of autonomous systems into the mission space will enable the Air Force to operate inside of the enemy's decision loop. This effort plans to demonstrate modular, transferable, open system architectures, and deliver autonomy technologies applicable to a spectrum of multi-domain applications. Development efforts will mature a set of technologies that enable airmen to plan, command, control, and execute missions with manageable workloads. The software algorithms and supporting architectures shall:• Ingest and understand mission taskings and commander's intent• Respond appropriately to human direction and orders• Respond intelligently to dynamic threats and unplanned events Chosen technologies will be open, reusable, adaptable, platform agnostic, secure, credible, affordable, enduring, and able to be integrated into autonomous systems. The program will be comprised of various technologies developed by AFRL and Industry, integrated into technology demonstrations and deliverables with all the necessary software, hardware, and documentation to support AFRL-owned modeling and simulation environments for future capability developments. Thus, all technology development efforts must adhere to interface designs and standards. **Open to July 23, 2023**.

Academic Research Funding Strategies, LLC (Page 1)

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