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by Lucy Deckard

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Welcoming New Faculty: What Research Development Offices Can Do

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By Lucy Deckard, co-publisher

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It's the time of year when new faculty are starting to show up on campus. Soon they will be participating in new faculty orientation, trying to find their offices and set up their labs, and learning about resources that are available to help them succeed at your institution. There are several things that a research development office can do to help new faculty get off to a strong start in pursuing research funding.

Let them know you exist and what you can do for them

Research development offices and sponsored projects offices can provide invaluable assistance to faculty as they start to pursue external funding to support their research, but new faculty – particularly early career faculty – may have no idea that such an office even exists. This situation can be compounded by the bewildering avalanche of information provided to new faculty in their first few weeks on campus. While it's important to participate in new faculty orientation events, recognize that faculty are drinking from a fire hose, and even if you talk to them directly and provide pamphlets, business cards and web addresses, they may have no memory of the discussion nine months from now when they are ready to write a grant proposal.

For that reason, it's a good idea to engage with new faculty multiple times and in various ways over their first year at your institution. For example, you might host bag lunches or short grant seminars or workshops particularly for new faculty in the spring (after the fall craziness has died down), visit departmental meetings and speak briefly about your office, and participate in other events that focus on new and junior faculty, such as receptions for new faculty.

Maintain an extensive and helpful website

New faculty will likely form their first impressions of your office based on your website. Make sure that it describes in detail the services you offer and how faculty can engage with your office. In addition, if you offer helpful information about funding opportunities, links to information about funding agencies, and helpful guidance about the proposal development process, new faculty may find your office through your website. You can make that even more likely by asking other offices that provide information for new and junior faculty (for example, your faculty development office) to link to your office's website. Providing helpful frequently updated information on your website will also encourage faculty to visit it frequently, keeping you on their radar so that they are more likely to contact you when they're ready to pursue funding.

Enlist department chairs/heads and senior faculty to encourage new faculty to seek you out

Make sure that your department chairs or heads and other senior faculty are familiar with the services your office offers for new and junior faculty. How you do this will vary depending on the size of your institution. You may be able to meet individually with key department chairs, or you may speak at meetings of department chairs convened by the dean, or at councils or committees that promote research at your institution. If there are formal mentoring programs for new faculty, provide the coordinator and mentors information about the services and resources that your office can offer new faculty. Be as specific as possible about what your office can provide and how to engage you. Remember that new faculty take their lead from their department chairs/heads and senior faculty, so if they encourage new and junior faculty to utilize your office, the faculty will be much more likely to do so.

Providing Advice for New Faculty

As you advise new faculty, it's important to remember that pursuing grants may not be appropriate for all new faculty. In some disciplines, promotion and tenure criteria focus mainly on publications rather than grant funding. Encourage new faculty to talk to their department leadership and senior mentors in their departments to understand the expectations in their particular department.

Encourage faculty to develop a long-term research plan that drives the funding they pursue. Some new faculty are so anxious about real or perceived expectations for winning grant funding that they indiscriminately pursue any funding opportunity for which they may remotely qualify. This can result in two problems: 1) they may spend a lot of precious time preparing proposals for grants for which they are not realistically competitive (often becoming discouraged); and 2) if they do win some of these grants, they may find that they are pursuing research based on the grants they happened to win rather than developing a clear line of scholarship that will help them earn tenure.

Take into account the fact that new faculty often arrive on campus with widely varying levels of experience and knowledge related to pursuing external funding. Assistant Professors in the life sciences who did several postdocs may be extremely sophisticated about funding agencies (particularly NIH) and may already have won one or more grants. In contrast, new faculty who were at institutions or in disciplines that don't prioritize external funding, or who were not mentored by their advisors on how to pursue funding, may know extremely little about the topic. Even in the case where a new faculty member has written proposals and won grants, they may have a relatively narrow understanding of the funding landscape. For example, they may know a lot about applying to a particular NIH study section or to a specific NSF core program, but they may not know how to identify other parts of the agencies where they might apply, which is particularly important as they start to separate themselves from their advisor's research topic. Similarly, new faculty who followed a non-traditional career path such as working in industry before returning to academia (a common occurrence in many engineering disciplines) may be extremely knowledgeable about pursuing industry-focused funding from DOE or DOD but may have no understanding of how NSF works and what they're looking for.

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Therefore, as you advise new faculty, it's a good idea to start with the fundamentals and then move on quickly if it's clear that you're covering ground that's familiar to them.

As you advise new faculty, you'll need to balance strategy and process. While it's critical that new faculty develop a long-term research strategy, identify and analyze potential funders and so forth, it's also important that they know who in your institution can help them with budgets, what the routing process is, and how they can get their proposals uploaded and submitted. A clear discussion of timing is also important so that they understand when they need to have final budgets done, when a final draft needs to be completed, and what approvals they'll need before submitting. All of these guidelines need to be provided in a supportive and advisory spirit; try to avoid a scolding or adversarial tone.

As you work with new faculty, make it clear that you are on their side and want to help them succeed. This is your chance to help new faculty develop good proposal habits and skills, while also developing a collaborative and supportive relationships with these faculty that can provide dividends for years to come as they progress (and hopefully succeed) in their academic careers.

Is There a Need for Your Proposed Project?

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

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Regardless of whether it is explicit or implicit in the research solicitation, funding success requires that the research narrative present a compelling need for the proposed project. How convincingly you argue the need for your project will be determined by many factors across multiple scales, ranging from how well your proposed research maps to national research needs, such as those identified in reports by The National Academies, or in reports and workshops funded by various research agencies, or to the research mission of the funding agency itself.

Even in the latter case, where relevance to the agency mission is paramount, you need to bolster your case in as many ways as possible. That is, while the core research need you address may be the very specific research need of the funding agency, particularly in the case of mission agencies whose needs can often be narrowly defined, the impact of your research on the field or other research program areas can give additional credence to the significance and fundability of your proposed project.

Therefore, even at mission agencies, there can be a significant competitive advantage to **expanding your needs horizon** to other scales and domains where your proposed research has possible impacts beyond the immediate research goals and objectives of the solicitation. While meeting the agency research needs as defined in the solicitation serves as the epicenter of your proposed research, it is often the case that other impacts of your proposed research may well emanate, like concentric waves on water, to impact other domains. It is always to your competitive advantage to address the issue of need in the research narrative in the most comprehensive way possible.

For example, your proposed research may impact and enable other research directions at various scales within an agency, from similar program areas to the overall strategic research plan of the agency. Your proposed research may have impacts that transcend the agency boundaries and influence the research agenda at other federal agencies, particularly in a time when multiple federal agencies (trans-agency research) address more global research questions in a complementary way, e.g., in the areas of antimicrobial research or the food, energy, and water nexus, the BRAIN, Big Data, and so on.

In these trans-agency research directions, often part and parcel of grand challenge research areas addressed by the National Academies and the like, making a convincing and compelling case for the national need for your proposed research links closely to your success. For example, the newly posted NSF solicitation for **Gen-3 Engineering Research Centers (ERC)**, *Partnerships in Transformational Research, Education, and Technology* (LOI due September 25), is a classic case of how a high-quality argument presenting the need for a project can become a major determinant of funding success.

In the case of the ERC, NSF poses three fundamental questions that must be successfully answered to get through the first funding gate—a preliminary proposal due October 23. First and foremost, NSF expects every applicant to address this core question: **“What is the compelling new idea and how does it relate to national needs?”** Bottom line: your great new

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idea must be conjoined with a national need. Neither alone is sufficient for funding success. Moreover, while this fundamental question is explicit in the ERC solicitation, it is implicit in many, if not most, research solicitations, regardless of scale or scope, agency or disciplinary domain.

Furthermore, addressing the “need” part of this equation is not a trivial task that can be satisfactorily answered “*off the top of your head.*” It requires that you first identify those domains where there is a need for your proposed research, describe your proposed research in the context of those needs, and support your claims of relevance to a need. The support can be offered by referencing national reports, workshops, literature, journal articles, etc. in a way that convincingly demonstrates to program officers and reviewers that your proposed research will offer high-impact, value-added benefits in a documented area of national need.

In some cases, this is an open-ended question linking a new idea with a national need. Consider the case of the ERC, where NSF’s “*goal of the ERC Program is to integrate engineering research and education with technological innovation to transform national prosperity, health, and security.*” In this case, “*the ball is in your court,*” so to speak, to pick your research topic, propose a compelling new idea, and make the case for how the research idea relates to the national need.

For example, any team currently at work preparing for the recently opened ERC solicitation will likely be exploring in great depth how they will answer the “***What is the compelling new idea and how does it relate to national needs***” question. To provide the answer, they’ll consider reviewing such documents as [NAE Grand Challenges for Engineering](#), [DOE Office of Science Grand Challenges](#), and [Grand Challenges in Global Health](#), among many other sources, to ensure the case is convincingly made that a high impact new idea actually impacts a national need in significant ways.

Moreover, for a program as competitive and prestigious as the ERC, successful teams will likely assign someone from the team to do the required background research to ensure that claims made in the research narrative about the need for the project are documented and supported from various sources as noted above. However, assigning a team member to research the literature and gather evidence of the national need for the proposed research is an excellent strategy, regardless of the proposal’s size. While the NSF question, “***What is the compelling new idea and how does it relate to national needs***” is specific to the ERC, it is wise to understand it in the generic context of research grant writing by assuming that it must be answered in any research proposal.

Finally, conjoining a convincing description of the compelling new research idea and the need for the proposed research is not an easy task, regardless of the proposal’s size or the authors’ grant-writing skills. The most common mistakes made in the research narrative in addressing this “idea/needs” topic are (1) to present a cascade of generalities in lieu of the detail and specificity needed to explain why the research idea is new and how exactly it maps to a national need(s); (2) to give too much background information without clearly demonstrating how the new research intersects and impacts the national need(s) in important ways; and (3) “to offer *too much what* and ***not enough how***”, and thereby remain ***vague about how the proposed research impacts those national needs.***

Make Your Case for Value-Added Benefits

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

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How well you describe the value-added benefits and impacts of your proposed research to the mission of the funding agency and/or the research field will be a principal factor in the decision to fund or not fund your proposal. Regardless of whether your proposed research is basic or applied, or to which federal research agency you submit your proposal, your funding fate will be determined by ***how well you make a compelling and convincing case for the value-added benefits of your research.***

Sometimes research agencies are very explicit in characterizing the meaning of “value-added benefits,” while in other cases their importance will be addressed more generally in the review criteria. In still other cases, the importance of addressing value-added benefits in the research narrative will be implicit in the mission of the agency itself, e.g., from reports, strategic plans, workshops, funding patterns, etc.

In all cases, a competitive research narrative needs to present a thoughtful, convincing, and informed case for the value-added benefits of the proposed research. ***There are typically four overarching backdrops or domains to which you will map the value-added benefits description in your research narrative: (1) agency mission, (2) research context/state of the field, (3) research synergies, and (4) broader impacts/dissemination, the latter meant in the generic sense and not necessarily in the NSF “broader impacts” specific sense.***

Moreover, mapping your value-added benefits description to one or more of these core domains is not a trivial task, although it need not be an onerous one if you have a thoughtful strategy for organizing your key arguments. Too often, however, ***proposals are declined for funding as the result of failing to address the value-added benefits requirement at all, i.e., it is simply overlooked***, regardless of whether that requirement was explicit or implicit in the solicitation. In other cases, the value-added benefits discussion in a declined proposal were inadequately addressed, ***most commonly by overly general narrative claims unsupported by sufficiently convincing details and specifics.*** This is a common error in grant writing overall--***making generalized claims without convincing validation grounded in specificity.***

Excessive narrative generalizations lacking specifics are a tell-tale sign that the author(s) has not done the hard work of conceptualizing the proposed research in the ***core value-added/impacts contexts*** defined above, or is unable to do so. Either way, absent a credible and convincing value-added benefits description in the narrative, program officers and reviewers will find little reason to fund the research.

The four components above ***form a narrative platform or structure for your value-added benefits descriptions in your research narrative*** and each requires a thoughtful and informed response to be compelling and convincing to program officers and reviewers.

For example, at mission agencies, the value-added benefits of your proposed research to the agency’s mission are ***paramount in the funding decision.*** Unfortunately, many proposal authors fail to become ***sufficiently informed about the agency mission.*** And it stands to reason that it will be impossible to make a convincing case for the value and impact of your research ***if first you do not clearly understand the agency’s mission-critical research priorities to which***

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your proposed research must map. To belabor the point, since it is an important one to funding success, if you don't understand the mission of the funding agency, ***how can you possibly indicate how your proposed research advances that mission?***

This is a surprisingly common oversight, given the simplicity of resolving it, i.e., take the time to read through the solicitation and the review criteria carefully to understand the reasons the agency is funding the proposed work and what motivates the solicitation itself. In addition, review any referenced documents, reports, technical workshops, agency or program area strategic plans, etc., noted in the solicitation and seen by the agency as important influences on why the research is being funded and further elaborating on its importance to the agency mission.

Agencies reference documents in solicitations for a reason—they want you to knowledgably propose research that will advance their mission in some important way(s) and ***not waste your time or theirs on writing and reviewing proposals that have no significant relevance to the agency mission.*** For example, those submitting a preliminary proposal October 23 for an NSF ERC, at least those who will be competitive, will likely be well versed in the Engineering Grand Challenges promulgated by the National Academy of Engineering, along with other references in the solicitation.

At both mission agencies and basic research agencies, the value-added benefits of your proposed research will often have to be described in the ***research context/state of the field***, i.e., your proposed research must advance, impact, or transform the research field in some significant way. Similar to understanding an agency's mission in order to make claims about how your research brings value-added benefits to that mission, in this case you must be sufficiently knowledgeable about the research context/state of the field in order to make credible claims about how your proposed research advances the field in some important ways.

A common requirement in research solicitations will state that ***the agency will only be funding research that is novel, innovative, and transformative.*** Implicit in this statement is the requirement that the author(s) of the research narrative do more than merely echo, without detailed elaboration, the agency language about proposing novel, innovative, and transformative research. Making unsubstantiated claims for the novelty of the proposed research is a common failing of declined proposals. Think of program officers and reviewers as all being from Missouri—the Show Me State, or the elderly lady in the Wendy's commercial that asks “***Where's the beef!?***” ***Merely claiming your research to be novel does not make it so.*** You must demonstrate why the proposed research is novel in a credible way, ***including appropriate references to the literature.*** Here again, you cannot make a credible claim that your proposed research is novel and at the frontiers of your field, as NSF likes to describe it, without knowing the state of that frontier and the context in which your proposed research fits.

In other cases, the value-added benefits of your proposed research lie in the ***research synergies*** created. Success in research funding is all about being able to convincingly describe the research synergies that will occur if your research is funded. Moreover, keep in mind when writing your description of the ***value-added benefits derived from project synergies***, that ***research synergies occur at various scales.*** For example, first and foremost, particularly on interdisciplinary research and team proposals, you must clearly describe the project's core synergies that come about from multiple research strands that, in aggregate, comprise your overall research goals and objectives. Of course the common flaw in unfunded proposals is that

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the research strands are siloed rather than integrated in a way that promotes the value-added benefits of synergy. At the next scale, you may describe how these research synergies impact the agency mission, the field, and possibly other fields. ***Convincing descriptions of research synergies at multiple scales make for a very compelling research narrative and one likely to be funded.***

Lastly, the value-added ***benefits that accrue from your description of the broader impacts of your proposed research cast a very broad net*** that goes well beyond the direct benefits to the agency, the field, and the research synergies, and encompasses such domains as STEM education, societal benefits, training and innovation, among many others that you will argue are specific to your proposed research.

Thinking about the value-added benefits of your proposed research in a structured, well organized, specific, and detailed way when writing the research narrative will go a long way towards ensuring you funding success.

Implicit Requirements: Dark Matter of the Research Solicitation

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

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While dark matter may remain largely a mystery in astrophysics, requiring its existence and properties to be inferred rather than directly observed, the existence of the proposal dark matter equivalent, i.e., **implicit requirements in the research solicitation**, is somewhat better understood, at least by successful proposal authors. By comparison, the **explicit requirements in a solicitation** are those accessible to anyone who reads the document with sufficient attention to get a clear understanding of the agency's research goals and objectives as well as the review criteria used to evaluate proposals.

Implicit requirements are something else entirely. While they are not clearly stated in the solicitation and are at best alluded to indirectly, **they are often one of the key factors in determining whether a proposal is funded or declined**. Explicit requirements are stated in "black and white," "plain as day," in the solicitation, whereas implicit requirements may be suggested by the explicit requirements in the solicitation, **but are often entirely dependent on the reader to decode them**.

In short, **implicit requirements reveal themselves only to the informed reader**. This reader brings to the solicitation **prior knowledge** of the agency, particularly its mission, culture, investment priorities, recent funding history, and role of program officers in the funding decision, as well as insight into what characterizes a competitive research narrative at various scales, such as directorates, divisions and programs at NSF. **As in the case of dark matter, the implicit requirements of a solicitation must be inferred rather than directly observed**. How well the implicit requirements in a solicitation are decoded, understood, and addressed in the research narrative is largely dependent on the author's prior experience.

For example, the author of a research narrative written for NSF will note in the solicitation that Broader Impacts (BI) will play a role in the review process. However, the solicitation may only **explicitly note** that NSF has two core review criteria, one of which is briefly and simply stated without elaboration: "**Broader Impacts: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.**" In fact, the Broader Impacts Criterion, like dark matter, often remains largely a mystery to many PIs, particularly those new to NSF.

For instance, left unstated to various degrees in NSF solicitations, but nonetheless enormously significant to a successful proposal, is the large body of knowledge about successful BI models that could help inform a better reading of an NSF solicitation. The point here is that prior BI knowledge brought to the reading of an NSF solicitation allows a much deeper and more nuanced insight to NSF's expectations not otherwise possible from a "**tabula rasa**" reading of the solicitation, and hence offers a significant competitive advantage in terms of writing a research narrative that most closely fits agency expectations.

Moreover, when responding to a DOD solicitation, including agencies such as ONR, ARO, AFOSR, and DARPA, the **implicit** understanding of the solicitation may far outweigh the **explicit**

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understanding. For example, both the *FY 2016 DOD Multidisciplinary University Research Initiative* (MURI) and *DOD FY 2016 Defense University Research Instrumentation Program* (DURIP) have white paper due dates in September. But what is implicit rather than clearly explicit, particularly to DOD newcomers, in both the MURI and DURIP, is the degree to which a history of prior DOD funding and a relationship with a program officer will heavily influence the funding decision. Similarly, an implicit understanding rather than a clearly stated understanding of the important role played at DOE and the national labs of program officers along with a prior relationship to them, is a critical factor in funding decisions.

While the examples of the roles of both explicit and implicit requirements in understanding funding solicitations are extensive, the bottom line is that those who plan, develop, and write proposals, or those who give advice on this process, must address both. Moreover, this points to a critical role that can be played by research professionals who, based on experience over time, become the extensive “corporate memory” for implicit requirements across a wide range of funding agencies and programs. This will prove to be important knowledge for new and junior faculty if they are to succeed in pursuing research funding.

Bottom line: the funding solicitation is not just what it appears to be—it is much more than that; or as the poet W. H. Auden once observed about funding solicitations, *“There's always another story. There's more than meets the eye.”*

Strategic Planning for an NSF ERC

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

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Sometime late in 2016 or early in 2017, some of those now planning to submit a letter of intent September 25 and a preliminary proposal October 23, followed by an invitation to submit a full proposal June 16, 2016 to NSF's [Gen-3 Engineering Research Centers \(ERC\) Partnerships in Transformational Research, Education, and Technology](#) program, may be notified of an NSF site visit. How many will actually get to site visit status in the upcoming competition is unknown, but if the history of the ERC program since 1985 is any guide, that number will be few, and fewer yet will get an award. In many ways, the ERC process of “do or die” review gates is not unlike the medieval process of “running the gauntlet,” albeit more mental than physical, but nonetheless a brutal test of an ERC team’s capacity for sustained focus on a compelling vision ([Three new Engineering Research Centers will advance U.S. resiliency and sustainability](#)).

With this in mind, if any proposal requires a forwarding-looking planning strategy, it is the ERC. While there is rightfully an intense focus on the first review gate—a preliminary proposal due October 23—don’t let your planning strategy be diminished by having only an immediate plan for the next review gate instead of a long-term plan for success. Remember, the endgame for the ERC process is a successful site visit **and** an award by NSF. Not all site visits lead to an award; typically fewer than half do.

Therefore, when writing center proposals, you are always scanning the horizon for what will come next in the process and strategically positioning for it. After all, an operational ERC is required to have multiple strategic plans—for research, education, diversity, innovation ecosystem, etc.—and so having a strategic plan for the planning, developing, and writing of the proposals and documents needed to successfully transit multiple review gates is essential to ERC success.

For example, any augments made in an ERC preliminary proposal must anticipate and provide a seamless transition to the narrative requirements of the full proposal, where core arguments will be expanded upon with more detail, specificity, and elaboration. Furthermore, a full proposal needs to be framed in a way that anticipates a seamless transition to a site visit and the likely questions that will be asked if a proposal makes it that far. Unfortunately, too often those writing an ERC preliminary proposal familiarize themselves only with the solicitation requirements for a preliminary proposal and ignore the requirements for the full proposal, effectively producing a ***siloed rather than integrated proposal development process*** for the key components of letter of intent, preliminary proposal, full proposal, and the review processes governing each.

Therefore, the strategic planning process for a successful ERC benefits enormously from taking an integrative approach to the entire submission process, including a site visit. Obviously, many of those site visit questions will not be known until panel review comments are returned from both a preliminary and full proposal, or the authors have submitted any clarifying documents to NSF following a well reviewed full proposal but before a formal notification of a site visit occurs.

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While there are many unknowns at the start of the ERC process, most start the ERC journey with sufficient knowledge to make strategic planning possible. After all, some planning is better than none. Moreover, some key common threads transit the entire ERC application process, from letter of intent to site visit, and can guide this process of laying out a strategic ERC development plan. (see [ERC Solicitation 13-560 Webinar Focus: Guidance for Preliminary Proposal Development](#) . (Note: a webinar on the currently open ERC will be announced shortly by NSF.)

For example, regardless of whether you are writing the research narrative for the preliminary proposal (including meeting with the ERC Program staff, via teleconference, during the preliminary proposal preparation phase) or the full proposal, or responding to reviewers' concerns at a site visit, at every step you will need to address some key research narrative requirements that are woven **into every ERC gate from preliminary to site visit**, most importantly:

First, the foundation of every ERC proposal is the [3-Plane Strategic Planning Chart](#).

Second, NSF expects each ERC proposal to address the following core questions:

1. What is the **compelling new idea** and how does it relate to **national needs**?
2. Why is a center necessary to tackle the idea?
3. How will the ERC's infrastructure integrate and implement research, workforce development and innovation ecosystem development efforts to achieve its vision?

Third, you must define a **compelling ERC vision** and demonstrate the value-added benefits of that vision. Your ERC vision must be **transformational, unique, and convergent**, and you must address each of these three characteristics in detail to justify your case.

Fourth, you must **describe multiple strategic plans**—for research, education, and innovative ecosystems, among others.

Fifth, at every stage of the process you must be able to answer with **specificity and detail** a common NSF question posed at site visits: “**What is the unit of change of the proposed project?**” For example, what would be different in five years and ten years if this ERC were funded? What would success look like? What are the metrics of success?

While there are many other aspects to a successful ERC proposal, the above five represent the fundamental core of what each ERC proposal must describe in the research narratives in order to be competitive for funding. These are hard, non-trivial questions that must be addressed at every stage of the submittal process. **Your final success will come from how well you and your ERC team are able answer these fundamental questions.**

Research Development & Grant Writing News

Research Grant Writing Web Resources

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ERC Solicitation 13-560 Webinar Focus: Guidance for Preliminary Proposal Development

(Note: a webinar on the currently open ERC will be announced shortly by NSF)

Ten Ways to Write a Better Grant

Many [NIH Institutes](#) put out guides and tip sheets on their Web sites, for example:

- [All About Grants Tutorials](#) - Including information to help investigators plan and write grant applications and manage their awards.
- [Applying for an NHGRI Grant](#)
- [Choosing an Appropriate NIH Funding Instrument and Funding Mechanism](#) (MS Word - 209 KB)
- [Peer Review Guidelines and Information](#)
- [Peer Review Meetings](#) - Meeting dates, descriptions, rosters, guidelines, etc.
- [Preparing Grant Applications](#)
- [Quick Guide for the Preparation of Grant Applications](#) (Complementary and Integrative Health)
- [SBIR/STTR Policy and Grantsmanship Information](#)
- [Tips for New NIH Grant Applicants](#)
- [Writing a Grant](#)

Electronic Media:

- [All About Grants](#) (Podcasts)
- [NIH Grant Review Process Videos](#) (YouTube)

Research Development & Grant Writing News

Educational Grant Writing Web Resources

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[NSF: Research on STEM Learning - Discovery Research PreK-12](#)

The Discovery Research PreK-12 program (DRK-12) seeks to significantly enhance the learning and teaching of science, technology, engineering and mathematics (STEM) by PreK-12 students and teachers, through research and development of STEM education innovations and approaches. Projects in the DRK-12 program build on fundamental research in STEM education and prior research and development efforts that provide theoretical and empirical justification for proposed projects. Projects should result in research-informed and field-tested outcomes and products that inform teaching and learning. DRK-12 invites proposals that address immediate challenges that are facing preK-12 STEM education as well as those that anticipate radically different structures and functions of preK-12 teaching and learning. The DRK-12 program has three major research and development strands: (1) Assessment; (2) Learning; and (3) Teaching. The program recognizes the synergy among the three strands and that there is some overlap among them. However, PIs should identify a clear focus of the proposed research efforts (i.e., assessment, learning, or teaching) consistent with the proposal's main objectives and research questions. The program supports five types of projects: (1) Exploratory, (2) Design and Development, (3) Impact, (4) Implementation and Improvement, and (5) Conferences and Syntheses. All five types of projects apply to each of the three DRK-12 strands. **Due Dec. 7**

[The Community for Advancing Discovery Research in Education](#)

CADRE has as its mission to support and connect researchers and developers in K-12 STEM education. It is the resource network for the DRK-12 program.

[Identifying and Supporting Productive STEM Programs in Out-of-School Settings](#)

More and more young people are learning about science, technology, engineering, and mathematics (STEM) in a wide variety of afterschool, summer, and informal programs. At the same time, there has been increasing awareness of the value of such programs in sparking, sustaining, and extending interest in and understanding of STEM. To help policy makers, funders and education leaders in both school and out-of-school settings make informed decisions about how to best leverage the educational and learning resources in their community, this report identifies features of productive STEM programs in out-of-school settings. Identifying and Supporting Productive STEM Programs in Out-of-School Settings draws from a wide range of research traditions to illustrate that interest in STEM and deep STEM learning develop across time and settings. The report provides guidance on how to evaluate and sustain programs.

Planning to submit an NSF proposal this year? This [CADRE toolkit](#) is a compilation of helpful resources.

[Education Development Center, Inc. \(EDC\)](#)

DR K-12 Solicitation

[DR K-12 Program Information](#)

Research Development & Grant Writing News

[DR K-12 Program Solicitation \(15-592\)](#)

Informational webinars: Join NSF Program Officer Karen King for an informational webinar on the newest DR K-12 Program Solicitation. Registration has not yet opened for these events. Stay tuned for more information.

- [Tuesday, September 22, 2015, 1-2pm ET](#)
- [Tuesday, September 29, 2015, 2-3pm ET](#)
- [Tuesday, October 6, 2015, 12:30-1:30pm ET](#)

Policies and Procedures for Submitting a Proposal

- [Proposal and Award Policies and Procedures Guide \(NSF 15-1\)](#)
- [Funding-How to Prepare a Proposal](#)
- [Grants.gov Application Guide](#)
- [FastLane](#)
- [FastLane Frequently Asked Questions \(FAQ\)](#)

Proposal Components

General

[NSF Guide for Proposal Writing](#)

Research

- [Common Guidelines for Education Research and Development](#)
- [Checklists for the Common Guidelines for Education Research and Development](#)
- [FAQs for NSF's Common Guidelines for Education Research and Development](#)

Instruments

- [Compendium of Research Instruments for STEM Education, PART I: Teacher Practices, PCK, and Content Knowledge](#)
- [Compendium of STEM Student Instruments PART II: Measuring Students' Content Knowledge, Reasoning Skills, and Psychological Attributes](#)

Partnerships

[Fostering Knowledge Use in STEM Education: A Brief on R&D Partnerships with Districts and Schools](#)

Mentoring Plan

- [CADRE Brief: Mentoring for the Postdoctoral/Early Career Researcher: Key Elements and Broader Impacts](#)
- [Mentoring Plan Example 1](#)
- [Mentoring Plan Example 2](#)
- [Spotlight on Early Career in STEM Education R&D](#)

Dissemination

[From Dissemination to Knowledge Use: Options for DR K-12](#)

Evaluation

[Evaluation in DR K-12 Projects: Options](#)

Previously Funded Work

- View the current [list of 2015 awardees](#).
- Explore [DIA2](#), a platform for searching research funded by the National Science Foundation (NSF).
- View [short videos on DR K-12 projects](#), featured in the 2015 Teaching & Learning Video Showcase.

Research Development & Grant Writing News

CADRE has completed several portfolio studies, including:

- General: [Descriptive Overview of the Discovery Research K-12 \(DR K-12\) Portfolio: Projects Funded from 2007 to 2012](#) (2013)
- Engineering: [A Targeted Study of the DR K-12 Engineering Education Projects](#) (2013)
- English Language Learners: [Math and Science Education with English Language Learners: Contributions of the DR K-12 Program](#) (2011)
- Assessment: [Summary of Discovery Research K-12 \(DR K-12\) Projects on Assessment: Working Document](#) (2009)
- Games & Simulations: [A Targeted Study of DRK-12 STEM Education Games and Simulations Projects](#) (2014)
- *Coming soon!* An updated Math and Science Education with English Language Learners: Contributions of the DR K-12 Program

Find more CADRE reports and papers at: <http://cadrek12.org/cadre-sponsored-products-tools>

Affiliated Project or Group:

- [NSF](#)

Agency Research News

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Dear Colleague Letter: FY 2016 Innovations at the Nexus of Food, Energy and Water Systems (INFEWS) Funding Opportunity on Nitrogen, Phosphorus, and Water

In 2010, NSF established the Science, Engineering, and Education for Sustainability (SEES)¹ investment area to lay the research foundation for decision capabilities and technologies aimed at mitigating and adapting to environmental changes that threaten sustainability. Some SEES investments advanced a systems-based approach to understanding, predicting, and reacting to stress upon, and changes in, the linked natural, social, and built environments. In this context, the importance of understanding the interconnected and interdependent systems involving food, energy, and water (FEW) has emerged. In 2015, NSF Issued a Dear Colleague Letter (DCL): SEES: Interactions of Food Systems with Water and Energy Systems² to accelerate fundamental understanding and stimulate basic research on the connections and interdependencies among these three systems.

Through this Dear Colleague Letter (DCL), issued by the Division of Chemistry (CHE) in the Directorate for Mathematical & Physical Sciences and the Division of Chemical, Bioengineering, Environmental and Transport Systems (CBET) in the Directorate for Engineering, the NSF aims to specifically focus on advancing knowledge of the nitrogen and phosphorus cycles; the production and use of fertilizers for food production; and the detection, separation, and reclamation/recycling of nitrogen- and phosphorus-containing species in and from complex aqueous environments.

In FY 2016, the topics of interest in INFEWS: N/P/H₂O include innovative, fundamental research to:

1. advance catalytic methods for the reduction of dinitrogen to ammonia and that will permit reductions in the energy requirements for fertilizer production;
2. develop new sensing modalities that will lead to field-deployable, inexpensive, and environmentally and energetically sustainable sensors for real-time monitoring of nitrogen- or phosphorus-containing species as they move, via agricultural run-off, to other water systems; and
3. gain understanding of the supramolecular recognition and binding of environmentally-relevant nitrogen- and phosphorus-containing species. Such efforts are essential for the selective and efficient detection, sequestration/separation, and recycling of these elements as well as for water purification efforts.

Frequently Asked Questions (FAQs) for NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)

Dear Colleague Letter: Communication About Automated Compliance Checking and Proposal Submission

Research Development & Grant Writing News

Dear Colleague Letter: Submission of Proposals to NSF Programs that Address the Interdisciplinary Topic of Theoretical Physics Approaches to Cancer Biology

Emerging and burgeoning opportunities for collaborative research using theoretical physical approaches to the life sciences have been identified through several NSF workshops (<http://physicsoflivingsystems.org/>) over the past few years, such as *Physics of Cancer Metastasis Workshop* in 2010, *Physics and Cancer II: Theoretical Foundations of Drug and Immune Resistance in Cancer* in 2012, *Kavli Institute for Theoretical Physics" Physics and Mathematics of Cancer* in 2012, and *Physical Principles of Human Cancer Imaging*, in 2013. In addition, the National Academies has conducted and published similar studies, including those entitled "Research at the Intersection of the Physical and Life Sciences" (http://books.nap.edu/catalog.php?record_id=12809), "A New Biology for the 21st Century" (http://www.nap.edu/catalog.php?record_id=12764), and "Inspired by Biology: From Molecules to Materials to Machines" (http://www.nap.edu/catalog.php?record_id=12159). In summary, significant advances may be expected as the result of continued investments in inter- and multi-disciplinary research at the intersection of the physical sciences and the life sciences with a focus on advancing the fundamental understanding of cancer biology to underpin translational research that promotes the prevention, detection, and treatment of cancer diseases. In that respect, theoretical physics is expected to bring a fundamental conceptual framework to the life sciences.

The Physics Division, through the Physics of Living Systems program, accepts and reviews investigator-initiated proposals on the interdisciplinary topic of theoretical physics in cancer biology. Proposals may involve joint efforts between investigators from theoretical physics and researchers from the biomedical community, although the focus of the project must be on the role that physics plays in the effort. Proposals should be submitted to the Physics of Living Systems program in the Physics Division in response to [NSF 15-579](#). The scope of submitted proposals should be commensurate with that which is typical for proposals entertained by these programs involving a single Principal Investigator (PI) or multiple investigators.

NASA, Agriculture Department Deputies to Sign Interagency Agreement for Earth Science, Agricultural Research

NASA Deputy Administrator Dava Newman and U.S. Department of Agriculture (USDA) Deputy Secretary Krysta Harden will signed an interagency agreement on Thursday, July 16, at NASA's Ames Research Center in Moffett Field, California. The signing event formalizes collaboration between NASA and the USDA and establishes a framework for enhanced cooperation in the areas of Earth science research, technology, agricultural management, and the application of science data, models and technology in agricultural decision-making. The agencies also seek to better collaborate on education and communication activities that inspire youth in America to pursue careers in science, technology, engineering and mathematics.

Dear Colleague Letter: Reconfiguration of Interfacial Processes and Thermodynamics (IPT) Program in the Division of Chemical, Bioengineering, Environmental, and Transport Systems (CBET)

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Effective October 1, 2015 the Interfacial Process and Thermodynamics (IPT) program, PD 14-1414, will no longer exist as a separate program and will no longer accept proposals starting with the fiscal year (FY) 2016 unsolicited proposal window (October 1-20, 2015). The science and engineering research foci within the IPT Program will be merged into other CBET Programs. Specifically, proposals with topic areas listed below should be submitted to the corresponding CBET program. These changes are reflected in revised program announcements on [CBET's webpage](#). Note that two of these programs have also undergone title changes.

- Nano interactions & transport of biological and ecological media - now encompassed in [Nano-Bio Phenomena and Processes in the Environment \(NPPE\)](#) (PD 15-1179; former program name was Environmental Health and Safety of Nanotechnology). Program contact is Nora Savage, nosavage@nsf.gov.
- Molecular thermodynamics - now encompassed in [Process Systems, Reaction Engineering and Molecular Thermodynamics \(PRM\)](#) (PD 15-1403; former program name was Process and Reaction Engineering). Program contact is Maria Burka, mburka@nsf.gov.
- Multiphase transport in biological systems and interfacial transport - Transferred to [Particulate and Multiphase Processes](#) (PD 15-1415). Program contact is Bill Olbricht, wolbrich@nsf.gov.

Please refer to the respective Program Directors for any clarifications and additional information. Please note that proposals submitted in the CAREER solicitation window, which ended on July 22, 2015, are not affected by these changes.

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Agency Reports, Workshops & Research Roadmaps

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A Strategic Vision for NSF Investments in Antarctic and Southern Ocean Research

Antarctic and Southern Ocean scientific research has produced a wide array of important and exciting scientific advances. Spanning oceanography to tectonics, microbiology to astrophysics, the extreme Antarctic environment provides unique opportunities to expand our knowledge about how our planet works and even the very origins of the universe. Research on the Southern Ocean and the Antarctic ice sheets is becoming increasingly urgent not only for understanding the future of the region but also its interconnections with and impacts on many other parts of the globe.

The U.S. National Science Foundation (NSF) provides U.S. researchers with broad access to the continent and its surrounding ocean. A Strategic Vision for NSF Investments in Antarctic and Southern Ocean Research identifies priorities and strategic steps forward for Antarctic research and observations for the next decade. This survey presents a decadal vision for strategic investments in compelling research and the infrastructure most critical for supporting this research. This report makes recommendations for high-priority, larger-scale, community-driven research initiatives that address questions poised for significant advance with the next decades. This report also outlines a roadmap through which the vision and these priorities can be met.

Emerging Workforce Trends in the U.S. Energy and Mining Industries: A Call to Action

Energy and mineral resources are essential for the nation's fundamental functions, its economy, and security. Nonfuel minerals are essential for the existence and operations of products that are used by people every day and are provided by various sectors of the mining industry. Energy in the United States is provided from a variety of resources including fossil fuels, and renewable and nuclear energy, all with established commercial industry bases. The United States is the largest electric power producer in the world. The overall value added to the U.S. gross domestic product (GDP) in 2011 by major industries that consumed processed nonfuel mineral materials was \$2.2 trillion.

Recognizing the importance of understanding the state of the energy and mining workforce in the United States to assure a trained and skilled workforce of sufficient size for the future, the Department of Energy's (DOE's) National Energy technology Laboratory (NETL) contracted with the National Research Council (NRC) to perform a study of the emerging workforce trends in the U.S. energy and mining industries. Emerging Workforce Trends in the U.S. Energy and Mining Industries: A Call to Action summarizes the findings of this study.

Identifying and Supporting Productive STEM Programs in Out-of-School Settings

More and more young people are learning about science, technology, engineering, and mathematics (STEM) in a wide variety of afterschool, summer, and informal programs. At the same time, there has been increasing awareness of the value of such programs in sparking, sustaining, and extending interest in and understanding of STEM. To help policy makers, funders and education leaders in both school and out-of-school settings make informed

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decisions about how to best leverage the educational and learning resources in their community, this report identifies features of productive STEM programs in out-of-school settings. Identifying and Supporting Productive STEM Programs in Out-of-School Settings draws from a wide range of research traditions to illustrate that interest in STEM and deep STEM learning develop across time and settings. The report provides guidance on how to evaluate and sustain programs. This report is a resource for local, state, and federal policy makers seeking to broaden access to multiple, high-quality STEM learning opportunities in their community.

Enhancing the Effectiveness of Team Science

The past half-century has witnessed a dramatic increase in the scale and complexity of scientific research. The growing scale of science has been accompanied by a shift toward collaborative research, referred to as "team science." Scientific research is increasingly conducted by small teams and larger groups rather than individual investigators, but the challenges of collaboration can slow these teams' progress in achieving their scientific goals. How does a team-based approach work, and how can universities and research institutions support teams?

Enhancing the Effectiveness of Team Science synthesizes and integrates the available research to provide guidance on assembling the science team; leadership, education and professional development for science teams and groups. It also examines institutional and organizational structures and policies to support science teams and identifies areas where further research is needed to help science teams and groups achieve their scientific and translational goals. This report offers major public policy recommendations for science research agencies and policymakers, as well as recommendations for individual scientists, disciplinary associations, and research universities. Enhancing the Effectiveness of Team Science will be of interest to university research administrators, team science leaders, science faculty, and graduate and postdoctoral students.

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New Funding Opportunities

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Content Order

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

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

New Funding Solicitations Posted Since July 15 Newsletter

[Higher Education Multicultural Scholars Program \(MSP\)](#)

The purpose of this competitive undergraduate scholarship grant program is to increase the multicultural diversity of the food and agricultural scientific and professional workforce, and advance the educational achievement of all Americans by providing competitive grants to colleges and universities. **Due August 31.**

[EHR Core Research \(ECR\) Fundamental Research in Science, Technology, Engineering and Mathematics \(STEM\) Education](#)

The EHR Core Research (ECR) program of fundamental research in STEM education provides funding in critical research areas that are essential, broad and enduring. EHR seeks proposals that will help synthesize, build and/or expand research foundations in the following focal areas: STEM learning, STEM learning environments, STEM workforce development, and broadening participation in STEM. The ECR program is distinguished by its emphasis on the accumulation of robust evidence to inform efforts to (a) understand, (b) build theory to explain, and (c) suggest interventions (and innovations) to address persistent challenges in STEM interest, education, learning, and participation. The program supports advances in fundamental research on STEM learning and education by fostering efforts to develop foundational knowledge in STEM learning and learning contexts, both formal and informal, from childhood through adulthood, for all groups, and from the earliest developmental stages of life through participation in the workforce, resulting in increased public understanding of science and engineering. The ECR program will fund fundamental research on: human learning in STEM; learning in STEM learning environments, STEM workforce development, and research on broadening participation in STEM. **Due September 10.**

[EPA's Gulf of Mexico Regional Partnerships Request for Proposals](#)

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This notice announces the availability of funds and solicits proposals that address water quality improvement; coastal habitat and ecosystems enhancement, restoration and/or protection; environmental education and outreach; and strengthen community resilience in the Gulf of Mexico region and its watersheds. **Due September 15.**

Ideas Lab: Measuring "Big G" Challenge

This solicitation describes an Ideas Lab on "Measuring Big G" Ideas Labs are intensive meetings focused on finding innovative solutions to grand challenge problems. The ultimate aim of this Ideas Lab organized by the Physics Division of the Mathematical and Physical Sciences Directorate at the National Science Foundation (NSF), in collaboration with experts in the field, is to facilitate the development of new experiments designed to measure Newton's gravitational constant G with relative uncertainties approaching or surpassing one part in 100,000. The aspiration is that mixing researchers from diverse scientific backgrounds will engender fresh thinking and innovative approaches that will provide a fertile ground for new ideas on how to measure G that can be used to validate and extend current calculations. US researchers may submit preliminary proposals for participation in the Ideas Lab only via FastLane. The goal is to develop multidisciplinary ideas that eventually will be submitted as full proposals. **Preliminary due September 21; full January 14.**

Gen-3 Engineering Research Centers (ERC) Partnerships in Transformational Research, Education, and Technology

The goal of the ERC Program is to integrate engineering research and education with technological innovation to transform national prosperity, health, and security. ERCs create an innovative, inclusive culture in engineering to cultivate new ideas and pursue engineering discovery that achieves a significant science, technology, and societal outcome within the 10-year timeframe of NSF support. For information on individual ERCs and their achievements, go to: <http://www.ERC-assoc.org> . **Those who submit proposals in response to this solicitation will need to address the following questions:**

1. What is the compelling new idea and how does it relate to national needs?
2. Why is a center necessary to tackle the idea?
3. How will the ERC's infrastructure integrate and implement research, workforce development and innovation ecosystem development efforts to achieve its vision? **LOI September 25; preliminary October 23; full June 16.**

Natural Hazards Engineering Research Infrastructure (NHERI) Network Coordination Office, Computational Modeling and Simulation Center, and Post-Disaster, Rapid Response Research Facility

The planned outcome of this solicitation is to establish the final three awards for the NSF-supported Natural Hazards Engineering Research Infrastructure (NHERI) - Network Coordination Office (NCO), Computational Modeling and Simulation Center (SimCenter), and Post-Disaster, Rapid Response Research (RAPID) Facility. The NCO, SimCenter, and RAPID Facility components for NHERI were originally competed under program solicitation NSF 14-605, Natural Hazards Engineering Research Infrastructure (NHERI) 2015-2019, but no awards for these components were made under that solicitation. Because the NCO, SimCenter, and RAPID Facility are integral

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awards for an integrated NHERI facility, this solicitation includes information about all four components of NHERI listed in NSF 14-605: NCO, Cyberinfrastructure (CI), SimCenter, and Experimental Facility (EF). The RAPID Facility is considered part of the EF cohort. Under this solicitation, proposals will only be accepted for the NCO, SimCenter, and RAPID Facility. All other proposals will be returned without review. **LOI October 16; full November 4.**

Research in the Formation of Engineers (RFE)

The NSF Engineering (ENG) Directorate has launched a multi-year initiative, the Professional Formation of Engineers, to create and support an innovative and inclusive engineering profession for the 21st Century. Professional Formation of Engineers (PFE) refers to the formal and informal processes and value systems by which people become engineers. It also includes the ethical responsibility of practicing engineers to sustain and grow the profession in order to improve quality of life for all peoples. The engineering profession must be responsive to national priorities, grand challenges, and dynamic workforce needs; it must be equally open and accessible to all. **Due October 29.**

Advancing Informal STEM Learning (AISL)

The Advancing Informal STEM Learning (AISL) program seeks to advance new approaches to and evidence-based understanding of the design and development of STEM learning opportunities for the public in informal environments; provide multiple pathways for broadening access to and engagement in STEM learning experiences; and advance innovative research on and assessment of STEM learning in informal environments. The AISL program supports seven types of projects: (1) Collaborative Planning, (2) Exploratory Pathways, (3) Research in Service to Practice, (4) Innovations in Development, (5) Broad Implementation, (6) Conferences, and (7) Informal STEM Learning Resource Center (FY 2016 only). **Due November 4.**

Integrated Earth Systems (IES)

Integrated Earth Systems (IES) is a program in the Division of Earth Sciences (EAR) that focuses on the continental, terrestrial and deep Earth subsystems of the whole Earth system. The overall goal of the program is to provide opportunity for collaborative, multidisciplinary research into the operation, dynamics and complexity of Earth systems at a budgetary scale between that of a typical project in the EAR Division's disciplinary programs and larger scale initiatives at the Directorate or Foundation level. Specifically, IES will provide research opportunities for the study of Earth systems that operate across components of the Earth encompassing the core of the Earth to the top of the critical zone with a specific focus on subsystems that include all or part of the continental, terrestrial and deep Earth subsystems at all temporal and spatial scales (NROES, 2012). IES will provide opportunities to focus on Earth systems connected to topics which include (but are not limited to) the continents; the terrestrial, surficial Earth systems including physical, chemical and biotic dimensions; linkages among tectonics, climate, landscape change, topography and geochemical cycles including core and mantle processes. **Due November 16.**

Early Career Research Program Department of Energy - Office of Science

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The Office of Science of the Department of Energy hereby invites grant applications for support under the Early Career Research Program in the following program areas: Advanced Scientific Computing Research (ASCR); Biological and Environmental Research (BER); Basic Energy Sciences (BES), Fusion Energy Sciences (FES); High Energy Physics (HEP), and Nuclear Physics (NP). The purpose of this program is to support the development of individual research programs of outstanding scientists early in their careers and to stimulate research careers in the areas supported by the DOE Office of Science. **Due Nov. 19.**

URL Links to New & Open Funding Solicitations

Links verified: Saturday, October 04, 2014

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

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- [Water Research Funding](#)
- [Fellowship and Grant Opportunities for Faculty Humanities and Social Sciences](#)
- [DARPA Current Solicitations](#)
- [Office of Naval Research Currently Active BAAs](#)
- [HRSA Health Professions Open Opportunities](#)
- [NIH Funding Opportunities Relevant to NIAID](#)
- [National Institute of Justice Current Funding Opportunities](#)
- [Funding Opportunities by the Department of Education Discretionary Grant Programs](#)
- [EPA's Office of Air and Radiation \(OAR\) Open Solicitations](#)
- [NETL Open Solicitations](#)
- [DoED List of Currently Open Grant Competitions](#)
- [Foundation Center RFP Weekly Funding Bulletin](#)

Solicitations Remaining Open from Prior Issues of the Newsletter

NSF Building Community and Capacity in Data Intensive Research in Education

As part of NSF's Cyberinfrastructure Framework for 21st Century Science and Engineering (CIF21) activity, the Directorate for Education and Human Resources (EHR) seeks to enable research communities to develop visions, teams, and capabilities dedicated to creating new, large-scale, next-generation data resources and relevant analytic techniques to advance fundamental research for EHR areas of research. Successful proposals will outline activities that will have significant impacts across multiple fields by enabling new types of data-intensive research. Investigators should think broadly and create a vision that extends intellectually across multiple disciplines and that includes--but is not necessarily limited to--EHR areas of research. **Due September 1.**

EP-IDS-15-002 The Biomedical Advanced Research and Development Authority Special Projects Department of HHS Asst Secretary for Preparedness and Response

The Biomedical Advanced Research and Development Authority (BARDA), within the Office of the Assistant Secretary for Preparedness and Response (ASPR) in the U.S. Department of Health and Human Services (HHS), supports advanced development and availability of medical countermeasures (MCMs) for chemical, biological, radiological and nuclear (CBRN) threats, pandemic influenza, and emerging infectious diseases through advanced product development, stockpile acquisition, building manufacturing infrastructure, and product innovation. BARDA establishes and maintains business collaborations by means of grants, cooperative agreements, contracts, and other transactions with the public and private sectors, domestically and internationally. BARDA has grown significantly since inception, acquiring new capabilities and employing new business approaches leading to unprecedented success in the development and acquisition of MCMs. **Due September 4.**

NEH Enduring Questions

The NEH Enduring Questions grant program supports faculty members in the preparation of a new course on a fundamental concern of human life as addressed by the humanities. This

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question-driven course would encourage undergraduates and teachers to join together in a deep and sustained program of reading in order to encounter influential ideas, works, and thinkers over the centuries. **Due September 10.**

[**American Psychological Assn Early Graduate Student Researcher Awards**](#) **Due September 15.**

[**20150916-HD NEH Digital Humanities Start-Up Grants**](#)

The Digital Humanities Start-Up Grants program awards relatively small grants to support the planning stages of digital projects that promise to benefit the humanities. The program supports both new projects in early stages of development and efforts to reinvigorate existing or dormant projects in innovative ways.

Proposals should be for the planning or initial stages of digital initiatives in any area of the humanities. Digital Humanities Start-Up Grants may involve

- creating or enhancing experimental, computationally-based methods or techniques for humanities research, teaching, preservation, or public programming;
- pursuing scholarship that examines the history, criticism, and philosophy of digital culture and its impact on society, or explores the philosophical or practical implications and impact of digital humanities in specific fields or disciplines; or
- revitalizing and/or recovering existing digital projects that promise to contribute substantively to scholarship, teaching, or public knowledge of the humanities.

Experimentation, reuse, and extensibility are hallmarks of this grant category, which incorporates the “high risk/high reward” paradigm often used by funding agencies in the sciences. NEH is requesting proposals for projects that take some risks in the pursuit of innovation and excellence.

Digital Humanities Start-Up Grants should result in plans, prototypes, or proofs of concept for long-term digital humanities projects prior to implementation. They can also be used to revitalize or recover projects in innovative ways that will allow greater access, reuse, and extensibility. **Due September 16.**

[**Advances in Biological Informatics \(ABI\)**](#)

The Advances in Biological Informatics (ABI) program seeks to encourage new approaches to the analysis and dissemination of biological knowledge for the benefit of both the scientific community and the broader public. The ABI program is especially interested in the development of informatics tools and resources that have the potential to advance- or transform- research in biology supported by the Directorate for Biological Sciences at the National Science Foundation. The ABI program accepts three major types of proposals: Innovation awards that seek to pioneer new approaches to the application of informatics to biological problems, Development awards that seek to provide robust cyberinfrastructure that will enable transformative biological research, and Sustaining awards that seek to support ongoing operations and maintenance of existing cyberinfrastructure that is critical for continued advancement of priority biological research. **Due September 22.**

[**PA-AFRL-AFOSR-2015-0001 Defense University Research Instrumentation Program \(DURIP\)**](#)

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This announcement seeks proposals to purchase instrumentation in support of research in areas of interest to the DoD, including areas of research supported by the Army Research Office (ARO), the Office of Naval Research (ONR), and the Air Force Office of Scientific Research (AFOSR). For detailed information regarding technical goals, potential proposers are advised to refer to the full announcement. They also are encouraged to contact DoD program managers before submitting proposals, in order to explore research areas that are of mutual interest to the proposers and DoD administering agencies. A proposal may be submitted to more than one administering agency; however, only one administering agency will fund the proposal, if selected, under the 2016 DURIP. **Due September 25.**

USDA-NIFA-AFRI-004915 Agriculture and Food Research Initiative - Foundational Program

The AFRI Foundational Program is offered to support research grants in the six AFRI priority areas to continue building a foundation of knowledge critical for solving current and future societal challenges. The six priority areas are: Plant Health and Production and Plant Products; Animal Health and Production and Animal Products; Food Safety, Nutrition, and Health; Renewable Energy, Natural Resources, and Environment; Agriculture Systems and Technology; and Agriculture Economics and Rural Communities. Single-function Research Projects, multi-function Integrated Projects and Food and Agricultural Science Enhancement (FASE) Grants are expected to address one of the Program Area Priorities (see Foundational Program RFA for details). **See application for various LOI dates. Proposals due September 30**

NSF Environmental Sustainability (Core Program)

The goal of the **Environmental Sustainability** program is to promote sustainable engineered systems that support human well-being and that are also compatible with sustaining natural (environmental) systems. These systems provide ecological services vital for human survival. Research efforts supported by the program typically consider long time horizons and may incorporate contributions from the social sciences and ethics. The program supports engineering research that seeks to balance society's need to provide ecological protection and maintain stable economic conditions.

There are four principal general research areas that are supported:

- **Industrial Ecology:** Topics of interest in Industrial Ecology include advancements in modeling such as life cycle assessment, materials flow analysis, input/output economic models, and novel metrics for measuring sustainable systems. Innovations in industrial ecology are encouraged.
- **Green Engineering:** Research is encouraged to advance the sustainability of manufacturing processes, green buildings, and infrastructure. Many programs in the Engineering Directorate support research in environmentally benign manufacturing or chemical processes. The Environmental Sustainability program supports research that would affect more than one chemical or manufacturing process or that takes a systems or holistic approach to green engineering for infrastructure or green buildings. Improvements in distribution and collection systems that will advance smart growth strategies and ameliorate effects of growth are research areas that are supported by Environmental Sustainability. Innovations in management of storm water, recycling and reuse of drinking water, and other green engineering techniques to

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support sustainability may also be fruitful areas for research. **NOTE:** Water treatment proposals are to be submitted to the CBET Environmental Engineering program (1440), NOT the Environmental Sustainability program (7643).

- **Ecological Engineering:** Topics should focus on the engineering aspects of restoring ecological function to natural systems. Engineering research in enhancement of natural capital to foster sustainable development is encouraged.
- **Earth Systems Engineering:** Earth Systems Engineering considers aspects of large scale engineering research that involve mitigation of greenhouse gas emissions, adaptation to climate change, and other global scale concerns. **Full Proposal Window: October 1, 2015 - October 20, 2015**

Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR)

The Improving Undergraduate STEM Education (IUSE: EHR) program invites proposals that address immediate challenges and opportunities that are facing undergraduate STEM education, as well as those that anticipate new structures (e.g. organizational changes, new methods for certification or credentialing, course re-conception, cyberlearning, etc.) and new functions of the undergraduate learning and teaching enterprise. The IUSE: EHR program recognizes and respects the variety of discipline-specific challenges and opportunities facing STEM faculty as they strive to incorporate results from educational research into classroom practice and work with education research colleagues and social science learning scholars to advance our understanding of effective teaching and learning. Toward these ends the program features two tracks: (1) Engaged Student Learning and (2) Institutional and Community Transformation. Two tiers of projects exist within each track: (i) Exploration and Design and (ii) Development and Implementation. **Multiple due dates beginning November 3.**

Interdisciplinary Behavioral and Social Science Research

The Interdisciplinary Behavioral and Social Science Research (IBSS) competition promotes the conduct of interdisciplinary research by teams of investigators in the social and behavioral sciences. Emphasis is placed on support for research that involves researchers from multiple SBE disciplinary fields and that integrates scientific theoretical approaches and methodologies from multiple SBE disciplinary fields. Emphasis also is placed on the significance of expected intellectual contributions that are likely to yield generalizable insights and information that will enhance theoretical perspectives and advance basic knowledge and capabilities across multiple SBE disciplinary fields. Although the IBSS competition will consider any proposal that addresses a topic for which the proposal makes a compelling case that the research will enhance broader theoretical understanding across multiple social and behavioral science fields, social and behavioral science researchers are especially encouraged to submit proposals for research on one of the following three broadly defined topics: Population Change; Sources and Consequences of Disparities; and Technology, New Media, and Social Networks. **Due Dec. 1.**

GCC-GRANT-SEP-15-001 Spill Impact Component Planning Grants Gulf Coast Ecosystem Restoration Council

This announcement provides guidance to the Gulf Coast States – defined as any of the States of Alabama, Florida, Louisiana, Mississippi, and Texas – or the Gulf Coast States’ administrative

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agents and the Gulf Consortium of Florida counties to apply for grants to fund planning activities to develop individual State Expenditure Plans (SEP) under the Spill Impact Component of the Resources and Ecosystem Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act of 2012 (RESTORE Act). The eligible entities may apply to the Council for a grant to use the minimum allocation available under the Spill Impact Component of the RESTORE Act for planning purposes. The submission process for this announcement is organized into two phases: (1) the submission of a planning SEP by a Gulf Coast State; and (2) the administrative application process, which includes the submission of all administrative grant application materials by the eligible entities. All planning activities proposed under this announcement are limited to the development of a comprehensive SEP, including conceptual design and feasibility studies related to specific projects. This announcement does not include engineering and environmental studies related to specific projects. It also does not include any pre-award costs incurred prior to August 22, 2014. **December 31, 2015**

Open Solicitations and BAAs

DARPA-BAA-14-48 Strategic Technologies

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

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

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

DHS-2014-OHA-BIOWATCH BioWatch Program: 2014-2015

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

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

The Office of Science of the Department of Energy hereby announces its continuing interest in receiving grant applications for support of work in the following program areas: Advanced Scientific Computing Research, Basic Energy Sciences, Biological and Environmental Research, Fusion Energy Sciences, High Energy Physics, and Nuclear Physics. On September 3, 1992, DOE published in the Federal Register the Office of Energy Research Financial Assistance Program (now called the Office of Science Financial Assistance Program), 10 CFR 605, as a Final Rule, which contained a solicitation for this program. Information about submission of applications, eligibility, limitations, evaluation and selection processes and other policies and procedures are specified in 10 CFR 605. This Funding Opportunity Announcement (FOA), DE-FOA-0001204, is our annual, broad, open solicitation that covers all of the research areas in the Office of Science and is open throughout the Fiscal Year. This FOA will remain open until September 30, 2015, 11:59 PM Eastern Time, or until it is succeeded by another issuance, whichever occurs first. This annual FOA DE-FOA-0001204 succeeds FOA DE-FOA-0000995, which was published October 1, 2013. **Open to September 30, 2015.**

Nuclear Energy University Programs - Fellowship and Scholarship

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

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

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

[DARPA-BAA-15-27 Innovative Systems for Military Missions](#)

The Tactical Technology Office of the Defense Advanced Research Projects Agency is soliciting executive summaries, white papers and proposals for advanced research and development of innovative systems for military missions. This solicitation seeks system and subsystem level technologies that enable revolutionary improvements to the efficiency and effectiveness of the military. Novel concepts are sought in the following focus areas: Ground Systems, Maritime Systems, Air Systems, and Space Systems. Refer to the URL stated below for complete details of the BAA. **Open to April 29, 2016.**

[APS-OAA-15-000048 U.S. Agency for International Development \(Higher Education Partnerships for Innovation and Impact \(HEPII\) Annual Program Statement \(APS\)](#)

The United States Agency for International Development (USAID) is seeking concept papers from qualified U.S. and non-U.S. higher education institutions (HEIs) to work with USAID to advance strategic priorities and objectives and achieve sustainable development outcomes, results, and impact. This Annual Program Statement (APS) has the flexibility to award Cooperative Agreements, Grants, Fixed Amount Awards, and leader with Associate Awards. This APS is not supported by specific funding, and any funding for any USAID-HEI partnership proposed under this APS would have to be requested from the specific USAID Mission, Bureau, or Independent Office with which the prospective applicant seeks to collaborate and to which the Concept Paper will be submitted. USAID seeks to optimize its relationship with HEIs by identifying and promoting successful partnerships and collaboration models, and increasing USAID's access to higher education technical resources. The purpose of this APS is to promote opportunities for leveraging HEI capabilities across USAID's portfolio and its program cycle, and strengthen developing country HEI capabilities to respond to and solve critical development challenges. **Original Closing Date for Applications: Jun 29, 2016**

[DARPA-BAA-15-39 DSO Office-wide BAA Department of Defense](#)

The mission of the Defense Advanced Research Projects Agency (DARPA) Defense Sciences Office (DSO) is to identify and pursue high-risk, high-payoff research initiatives across a broad spectrum of science and engineering disciplines and to transform these initiatives into important, radically new, game-changing technologies for U.S. national security. In support of this mission, this DSO Office-wide BAA invites proposers to submit innovative basic or applied research concepts in one or more of the following technical areas: Physical Systems; Mathematics, Modeling and Design; and Human-Machine Systems. Each of these areas is described below and includes a list of example research topics. For each technical area addressed, proposed research should investigate innovative approaches that

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enable revolutionary advances. DSO is explicitly not interested in approaches or technologies that primarily result in evolutionary improvements to the existing state of practice. **Open to July 2, 2016.**

Open Solicitations from IARPA (Intelligence Advanced Research Projects Activity) Army Research Laboratory Broad Agency Announcement for Basic and Applied Scientific Research

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

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

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

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

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

University Small Grants Broad Agency Announcement

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

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

NGA welcomes all innovative ideas for path-breaking research that may advance the GEOINT mission. The NGA mission is to provide timely, relevant, and accurate geospatial intelligence (GEOINT) in support of national security objectives. GEOINT is the exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the Earth. GEOINT consists of imagery, imagery intelligence, and geospatial information. NGA offers a variety of critical GEOINT products in support of U.S. national security objectives and Federal disaster relief, including aeronautical, geodesy, hydrographic, imagery, geospatial and topographical information. The NGA Academic Research Program (NARP) is focused on innovative, far-reaching basic and applied research in

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

AFRL Research Collaboration Program

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

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

Announcement for Basic, Applied, and Advanced Scientific Research. This Broad Agency Announcement (BAA), which sets forth research areas of interest to the United States Army Research Institute for the Behavioral and Social Sciences, is issued under the provisions of paragraph 6.102(d)(2) of the Federal Acquisition Regulation (FAR), which provides for the competitive selection of proposals. Proposals submitted in response to this BAA and selected for award are considered to be the result of full and open competition and in full compliance with the provisions of Public Law 98-369 (The Competition in Contracting Act of 1984) and subsequent amendments. The US Army Research Institute for the Behavioral and Social Sciences is the Army's lead agency for the conduct of research, development, and analyses for the improvement of Army readiness and performance via research advances and applications of the behavioral and social sciences that address personnel, organization, training, and leader development issues. Programs funded under this BAA include basic research, applied research, and advanced technology development that can improve human performance and Army readiness. The funding opportunity is divided into two sections- (1) Basic Research and (2) Applied Research and Advanced Technology Development. The four major topic areas of

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research interest include the following: (1) Training; (2) Leader Development; (3) Team and Inter-Organizational Performance in Complex Environments; and (4) Solider/Personnel Issues. Funding of research and development (R&D) within ARI areas of interest will be determined by funding constraints and priorities set during each budget cycle. **Open to February 5, 2018.**

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

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

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

The AFRL/RIEA branch performs Research and Development (R&D) across a broad area of Air Force Command, Control, Communications, Computers/Cyber, and Intelligence (C4I). All applicable "INTs" are investigated with emphasis on Ground Moving Target Indication (GMTI), Electronic Intelligence (ELINT), Signals Intelligence (SIGINT), Image Intelligence (IMINT), Non Traditional Intelligence, Surveillance and Reconnaissance (NTISR), and Measurement and Signature Intelligence (MASINT). The APEX Center is used to perform analysis for seedling efforts, provide baseline tool development for major programs, and to provide realistic operational systems/networks/databases for integration efforts. The APEX Center resources will be used by the Government to perform the necessary research, development, experimentation, demonstration, and conduct objective evaluations in support of emerging capabilities within the Processing and Exploitation (PEX) area. Software tools, data sets, metrics (Measures of Performance/Measures of Effectiveness), and analysis are needed for the Government to perform the vetting, maturing, and analysis of efforts related to PEX, e.g. Automatic Tracking, Activity Based Intelligence, Entity, Event & Relationship (EER) Extraction, Association & Resolution (A&R), Analysis & Visualization (A&V), Social Network Analysis, Network Analytics, Pattern Discovery, Scalable Algorithms, and Novelty Detection. The AFRL APEX Center is the AFRL/RI gateway into the cross-directorate PCPAD-X (Planning & Direction,

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Collection, Processing & Exploitation, Analysis & Production, and Dissemination eXperimentation) initiative. **Open to FY 2018.**

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

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

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

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

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

The Air Force Research Laboratories and 711th Human Performance Wing are soliciting white papers (and later technical and cost proposals) on the following research effort. This is an open ended BAA. The closing date for submission of White Papers is 17 Nov 2019. This program deals with science and technology development, experimentation, and demonstration in the areas of improving and personalizing individual, team, and larger group instructional training methods

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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.**

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