

# Research Development & Grant Writing News

**Volume 4, Issue 1: September 15, 2013**

## **Our eBook**

[New Faculty Guide to Competing for Research Funding](#) is an invaluable tool for faculty writing research grants, or for use by research offices developing grantwriting workshops to help faculty write more competitive proposals. [Table of Contents](#).

**Note to Subscribers:** This issue begins the 4<sup>th</sup> year of publication of this newsletter. We want to thank all of our subscribers for your support and for the numerous emails and phone calls we have received commenting on the usefulness of this newsletter to your research development and grant writing efforts.

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## Strategic Research Training for New Faculty

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

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One of the most helpful forms of research support for new faculty is training in research strategic planning, development, and grant writing. These activities must be well grounded on proven competitive insights that allow new faculty to jump start their research careers in a more organized, focused, and successful way. Research strategic planning is one of the most important skills new faculty can learn in the early stages of their careers, and one that will benefit them enormously over their entire academic careers. Investing in the research strategic planning, development, and grant writing training of new faculty represents one of the best long-term investments research offices can make in new faculty.

In many ways, this investment in training new faculty resembles investing in a broad-based stock index fund—the management (i.e., training) costs are low and the average return on the investment will be much higher than not investing at all, or in trying to pick “predetermined winners,” thereby focusing resources on a smaller subset of faculty. The worst option is not to invest at all in helping new faculty establish the competitive grant writing skill set needed to transition their research from excellent ideas (the reason they were hired) to funded research projects.

Moreover, the temptation to prematurely “pick winners” among faculty, perhaps channeling Jim Cramer of CNBC’s “*Mad Money Stock Picks*,” is one of the more common strategic missteps made in the allocation of institutional resources for grant training. The same can be said of the temptation to adopt the “*go big or go home*” philosophy by focusing all or almost all of the research development resources on the support of major center initiatives to the exclusion of new and junior faculty. After all, when it comes to large center initiatives, such as the current competition for NSF’s Engineering Research Centers, for every hundred universities that “*go big*” by starting the ERC gauntlet with a preliminary proposal, historically about 98 universities will “*go home*” without an award.

While the “*Hail Mary pass*” is exciting to watch in college football (e.g., Doug Flutie of Boston College at Miami in 1984), it does not translate well into a strategy for allocating research development resources. Here, the diversified approach will consistently generate the best funding returns on investment, again similar to investing in a broad-based index fund. Under this strategy, allocating sufficient research development resources for grant training for new and junior faculty offers a ***proven strategy for long-term success in increasing an institution’s total return on its research portfolio***.

However, the benefit of research grant training for new faculty can be optimized. Faculty members who participate in the training activities, perhaps some variation of one-day workshops, several day retreats, or a series of topic-specific mini-workshops offered weekly over a period of a month or longer, should give sufficient prior thought to their career objectives, particularly to departmental expectations for promotion and tenure, so that they engage in the training activities with their preliminary research strategic plan in mind. This

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preparation will serve to better guide the research training experience, both for them and the presenters of the training.

For example, any new faculty who plan to submit an NSF CAREER proposal, or similar early career proposal to other federal agencies, e.g., NIH, DoD, or foundations, will need a robust career strategic plan to help program officers and reviewers better judge the value of investing in their career. Likewise, it is helpful to request that faculty participating in research training activities prepare a brief (one-page) document outlining their career research objectives prior to attending training activities. This will prepare them to ask the presenter(s) questions that will elicit the most informative responses, for them individually and for others as well. As geologists have observed, *“if you don’t ask the right questions, the rock won’t answer.”*

After all, the most beneficial grant training occurs when those attending are interactively engaged in the training process and ask the presenter the most challenging and probing questions possible, often from the very focused and singular perspective of an individual researcher. Moreover, there will often be common denominator questions asked that can be answered in both the general or generic context, as well as the case-specific context. ***For example, a new faculty member in biochemistry doing research related to diabetes may ask whether she should submit proposals to the American Diabetes Association, NIH/NIDDK and NSF. She has no experience with any of these agencies, and wonders where to submit a proposal she has already begun writing.***

However, a good presenter will encourage questions like this during the presentation rather than after it, recognizing the opportunity such a question offers, both in the specific case of the questioner, and, more importantly, in the more general case across research areas and agencies. New faculty commonly ask which federal agencies are most likely to fund their research, thereby giving the presenter the opportunity to expand the relevance of the specific question to the entire audience. This would be done by answering the specific question and then elaborating on that answer in the broadest context by pointing out the importance that new faculty should become able to distinguish between agencies, in this case, ADA, NIH, and NSF. But this case can be easily expanded to other agencies, e.g., DOE/BER, USDA/NIFA, etc., that fund biochemistry research, but do so motivated by different agency missions, cultures, and funding priorities, all key topics to be covered in any grant writing presentation to new faculty. It is always important for the presenter to contextualize the topics of the presentation to the particular audience, and probing and challenging questions from the audience help promote that that through interaction.

Moreover, this seemingly simple and brief question offers a veritable gold mine for addressing the ***key strategic understandings that new faculty must acquire*** if they are to be successful in obtaining research funding sufficient to meet institutional expectations for third-year review and promotion and tenure. For example, any useful knowledge base is grounded on the capacity to make clear distinctions. Some of the numerous distinctions that need to be addressed in response to the example question posed above include differentiating the type of research done by the new faculty member (where does it fall on the spectrum from applied research to basic or fundamental research?) and learning the mission of the particular funding agency (is it “bench to bedside” research on human diseases, such as NIH, or fundamental

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research that drives new discoveries both within and outside the field such as NSF?), among many other topics that must be addressed in the specific context of each new faculty member.

Of course, in turn, the most effective presenters from university research offices are those who respond to challenging and probing questions from the audience from an extensive experience base in grant writing across many disciplines and agencies that allows them to quickly shift from a general discussion of a generic grant writing topic to a very targeted response to meet the more focused needs of any particular questioner regardless of academic discipline or funding agency of interest.

Also, keep in mind that even highly experienced presenters from university research offices can be asked questions that are unanswerable for several reasons: perhaps the question is overly hypothetical, or so uniquely specific to the research of the person asking the question that it is best answered by an agency program officer. The importance of strong experience in university-based research strategic planning, development, and grant writing is not to ensure that every possible question can be answered “channeling an agency-specific program officer,” but that the presenter(s), perhaps a team from a university research office complemented by faculty with extensive experience at a specific agency, e.g., either as a successful PI or a review panelist, can demonstrate an approach to answering a question that they cannot answer specifically. After all, even the most highly experienced grant writers will tell you that every proposal presents a new challenge and that even the most successful PIs have more proposals declined than funded.

Of course the most fundamentally important question asked by new faculty during an introductory presentation on grant writing relates ***to how to write a successful project narrative***. Basically, such a question asks how can I present an excellent research idea of significance to the field and bringing value-added benefits to the research mission of the funding agency unencumbered by a poorly written narrative structure that does not clearly, simply, succinctly, and logically explain the significance of the research to the reviewers and program officers.

A successful proposal is a well-written proposal. Reviewers will often comment in reviews on the quality of the writing, and if reviewer comments disparage the quality of the writing, they will also disparage the quality of the research, since poor writing leaves reviewers confused about what is being proposed. Of course, good writing cannot disguise a bad idea, but it does allow good ideas to be understood and considered for funding. In a research narrative, good writing requires both strong writing skills and strong strategic skills that will help frame the narrative arguments in a way that makes the most compelling case for funding. PIs who are not strong writers should find support from those who are; they can also work with the PI on the organization of the proposal, offer rewriting and editing suggestions, and help the narrative converge after multiple iterations to as close to perfection as possible.

Any presentation to new faculty on grant writing must address the core topic of how to write a competitive research narrative. ***This is fundamental to success in grant writing—if you can’t write, you can’t win.*** There are several ways of doing this and multiple tiers to the process. To begin, it is helpful to discuss what characterizes a well written narrative and what characterizes a poorly written proposal and give examples for discussion. Moreover, this discussion needs to go well beyond the fundamental mechanics of writing well, e.g., grammar,

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structure, punctuation, etc., by addressing the actual craft of writing a project narrative based on the strategic factors that make for a persuasive and compelling research narrative, i.e., one that convinces program officers and reviewers to fund a proposal.

Over the past year alone, more than 18 articles in this newsletter have addressed topics related to the key strategies of writing a competitive project narrative that can be used to inform presentations for new faculty, **as given below with the article issue date**. A complete list of articles addressing the topic of writing proposal narratives that have been published in this newsletter over the past three years can be found [here](#). Moreover, similar discussions are addressed in our eBook ***New Faculty Guide to Competing for Research Funding: What all new faculty need to know about finding funding and writing research proposals*** ([here](#)). These articles were written from the experience and perspective of the authors who have decades of experience writing proposal narratives funded for hundreds of millions of dollars, particularly from NSF and the major federal research agencies. Therefore, the articles can be used to complement the expertise of university research offices planning grant writing training for faculty and thereby provide a proven knowledge base of the key strategic information about writing winning narratives that has to be communicated to faculty.

- Writing the 1.5-Page Practice Proposal (July 2013)
- Getting the Writing Right (April 2013)
- Proportionality & Sequence in the Narrative (March 2013)
- Why Generalities Suffocate the Narrative (January 2013)
- From Silos to Synergy: The Yellow Brick Road of Grant Writing (December 2012)
- Saturated Superlatives Clog the Arteries of Proposals (December 2012)
- No Tweaking, No Nudging, No Band Aids (November 2012)
- The Role of Context in a Successful Proposal (November 2012)
- Why Formatting Is Important (November 2012)
- Why Halloween Is Bad for Proposals, Part 7 (October 2012)
- Too Much Data? (September 12)
- Why Halloween Is Bad for Proposals, Part 6 (September 12)
- Interviewing Schrödinger's Cat (August 2012)
- Do You Have a Narrative Integration Plan? (August 2012)
- Why Halloween Is Bad for Proposals, Part 5 (August 2012)
- Avoid the Generic Introduction (July 2012)
- Narrative Silos Are Like Weeds (July 2012)
- Why Halloween Is Bad for Proposals, Part 4 (July 2012)

## Pointing New Faculty to Hidden Opportunities

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

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While finding hidden research opportunities may not be as elusive as finding dark matter in the universe, it may nevertheless pose a challenge. However, the object of this search may be “hidden in plain sight,” as suggested in the Edgar Allan Poe story, *The Purloined Letter*. Two of the more common funding opportunities “hidden in plain sight” from new faculty include submitting unsolicited proposals and submitting white papers or concept papers that may lead to a proposal under a currently open Broad Agency Announcement (BAA).

New faculty enter academic positions on various pathways, typically going directly from the PhD to a faculty position, or perhaps entering a faculty position from a post-doc, industry, or a national research laboratory. However, new faculty often have numerous unanswered questions about launching and funding their research careers. Moreover, their search for answers is made more challenging by the old adage that “*you can’t know what you don’t know*.” The former (unanswered questions) may be classified as “known unknowns” and the latter classified as “unknown unknowns.” In the latter case, research offices can **help anticipate** the information new faculty will need to optimize their research funding opportunities and career strategies. Moreover, substantive information on possible funding opportunities from unsolicited proposals and BAAs (see listing at end of BAAs posted to [Grants.gov](#)—use keyword search term “BAA” to generate the full list) is too often absent or too briefly addressed in workshops on helping new faculty identify funding opportunities. This information can help the new faculty locate a suite of possible funding opportunities over several years that can map to their career strategic plan and thereby allow them to develop complementary and synergistic funding successes over time.

Why is the importance of this information apparently unrecognized? For one, time-limited funding workshops can more easily focus on the basics of locating published funding solicitations on agency websites. These websites often feature open funding opportunities occurring on a regularly scheduled basis, as well as the additional benefits of agency email alerts and RSS feeds that make the tracking of these funding opportunities more transparent and easily done. Funding opportunities resulting from unsolicited (investigator initiated) and agency BAAs take more personalized digging, depending on the agency, to determine the appropriateness of the opportunity to an individual faculty member’s research area. Moreover, agency guidelines for submitting unsolicited proposals are typically less structured than those for submitting a proposal to a published solicitation. To the inexperienced grant writer, the unsolicited proposal can represent a more challenging experience seemingly fraught with more uncertainty, especially when compared to the more prescriptive published solicitation on a more targeted and agency-defined research topic.

The reason for this, of course, is that unsolicited opportunities are investigator initiated and largely investigator defined. The faculty member must determine whether or how well his proposed research complements the agency’s mission critical priorities. In the case of published solicitations, the research goals and objectives are typically defined with much more

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specificity and a more narrow scope than is the case for unsolicited proposals, and the review criteria typically include solicitation-specific information on the research goals and objectives. By comparison, unsolicited proposals are defined in a more open-ended environment and so the goals, objectives, and review criteria used by the agency are much more generalized. This makes sense, since the agency is asking the investigator to explain how her research fits the agency or program mission.

At this point, some new faculty may think, why bother with unsolicited proposals if the funding pathway requires more initiation effort and the process itself is less clearly defined than that of a published solicitation. The answer to this “why bother?” question typically surprises most young faculty. ***Roughly 50% of the proposals funded by NSF and 80% of those funded by NIH are unsolicited, or investigator-initiated proposals.*** The former are typically submitted through open funding windows by various NSF program offices and the latter through NIH Parent Announcements.

Of course, once you “show them the money” to sufficiently gain their attention, and to ensure transparency and full disclosure, you may want to point out that unsolicited proposals, particularly in response to a BAA, may require multiple steps, starting with a white paper or concept paper that may or may not lead to an initiation to submit a full proposal. You can point out that, while this process may require a 3 to 5 page white paper, such a paper will require much less time and effort than a 15-page (or longer) proposal (see article entitled “*Quad Charts, White Papers & Unsolicited Proposals: Role in Research Funding*” in the October 2010, issue of this newsletter).

Moreover, speaking in general of unsolicited proposals, but particularly those being submitted to open BAAs, and especially to the DoD agencies, keep in mind the oft-repeated story of the professor who was visiting her program officer at a DoD research laboratory. During discussions about her research and how it would benefit the agency mission, she noticed a side room off the main office with a long table containing tall stacks of proposals, literally in the hundreds, and dominating the space in the room. She was intrigued by this huge stack of proposals and casually asked about them. “Those are permanently unread proposals submitted to me by researchers I don’t know,” the program officer explained, “I have never had a request to visit with any of them, either by phone, email, or at a conference, or in this office.”

There is a good take away message here for any faculty considering the submission of an unsolicited proposal, and not just those going to the defense agencies—talk to a program officer. Agencies and programs offices within agencies can differ widely on the protocols that guide the submission of unsolicited proposals. In some cases, it is easily determined, e.g., the Department of Energy publishes an agency-wide “[Guide for the Submission of Unsolicited Proposals](#),” whereas in the case of BAAs, the guidelines are BAA specific in many cases (see below Grants.gov BAA search results). NIH guidelines are contained in the “[Parent Announcements \(For Unsolicited or Investigator-Initiated Applications\)](#)”. NSF program office websites have information on submitted unsolicited proposals, and in many cases these are also announced through NSF Dear Colleague Letters, e.g., [Dear Colleague Letter: Unsolicited Proposals at the Interface of the Biological, Mathematical and Physical Sciences, and Engineering](#). The format and submission guidelines for NSF proposals are contained in the Grant Proposal Guide (GPG). Also see [National Science Foundation \(NSF\) and National Academy](#)

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[of Sciences \(NAS\) Master Agreement for Unsolicited Proposals April 2012](#). It is also worth noting that some agencies do not accept unsolicited proposals, most notably USDA's National Institute of Food and Agriculture (NIFA). However, the best way for new faculty to determine whether a federal agency funds unsolicited proposals is to view the agency website for details and guidelines for submission. Often, a simple Google search on "*How to submit unsolicited proposals at 'AGENCY NAME'*" is sufficient to get the appropriate information.

## Grants.gov keyword search on "BAA"—12 of 65 results

1 - 25 OF 65 MATCHING RESULTS:					« Previous 1 2 3 Next »				
Funding Opportunity #	Opportunity Title	Agency	Open Date	Close Date					
<a href="#">BAA-13-01DMDI</a>	The Digital Manufacturing and Design Innovation (DMDI) Institute	Dept of the Army -- Materiel Command	07/05/2013	10/11/2013					
<a href="#">ONRBAA13-001</a>	Long Range BAA for Navy and Marine Corps Science and Technology	Office of Naval Research	09/28/2012	09/30/2013					
<a href="#">BAA-11-01-HPW</a>	Aerospace Medicine, Clinical Research, Human Performance Research, and Expeditionary Medicine	Air Force -- Research Lab	12/16/2010	12/15/2015					
<a href="#">W912HZ-13-BAA-01</a>	2013 Broad Agency Announcement	Engineer Research and Development Center	01/04/2013	01/31/2014					
<a href="#">BAA-09-04-RH</a>	Warfighter Interface Technologies Advanced Research Programs (WITARP)	Air Force -- Research Lab	10/01/2009	09/30/2014					
<a href="#">NOAA-NFA-NFAPO-2012-2003133</a>	FY 2012 - 2013 Broad Agency Announcement (BAA)	Department of Commerce	12/01/2011	09/30/2013					
<a href="#">W911NF-13-R-0006</a>	Defense Forensics and Biometrics Agency (DFBA) BAA for Basic, Applied	Dept of the Army -- Materiel Command	07/15/2013	06/30/2015					
<a href="#">HDTRA1-08-10-BRCWMD-BAA</a>	DTRA FY2009 – 2011 Basic Research for Combating Weapons of Mass Destruction (WMD) Broad Agency Announcement (BAA)	Defense Threat Reduction Agency	02/12/2009						
<a href="#">HDTRA1-11-16-BRCWMD-BAA</a>	FY2011 – 2016 Basic Research for Combating Weapons of Mass Destruction (C-WMD) Broad Agency Announcement (BAA)	Defense Threat Reduction Agency	03/01/2011						
<a href="#">BAA-11-03-HPW</a>	Air Force Medical Support Agency(AFMSA/SG9) Modernization Directorate Research/Development and Innovations	Air Force -- Research Lab	07/18/2011	07/17/2016					
<a href="#">BAA-09-02-RH</a>	Advances in Bioscience for Airmen Performance	Air Force -- Research Lab	10/01/2009	09/30/2014					
<a href="#">BAA-09-05-RH</a>	Science and Technology For Warfighter Training and Aiding	Air Force -- Research Lab	10/01/2009	09/30/2014					

## What New Faculty Need to Know about NIH

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

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The first thing new faculty need to know about NIH is that it is hands down the best among all federal agencies and foundations in providing comprehensive online information on how to submit a research grant to that agency. This is not just limited to process information related to appropriate forms, budgets, and related documents required to submit an application, but it also includes extensive tutorials on how to write a stronger grant application. Advice on the competitive strategies proven to be successful for obtaining NIH funding are also extensively addressed by NIH. While there are often debates, differing opinions, and unanswered questions, particularly about potential revenue streams, when it comes to universities plunging into the MOOC-World (Massive Open Online Courses), NIH “Mini-MOOCs” in the form of online grant tutorials have been offered for years by the agency with the express purpose of showing researchers a clear and strategic path to the revenue streams that will fund their research.

Of course with so much information available, the question is where to start the learning process. One possible hint can be found in the old adage that “those who do not learn from history are doomed to repeat it.” In fact, research grant writing is one of the best history teachers you can have. The lesson comes initially in the form of mistakes made by others, and then, as you write more grants, ***you will acquire the experience-based enlightenment that comes from learning from the mistakes you make.*** While painful, mistakes do make for great grant writing tutors, although it may not seem so at the time you read the reviews recommending against funding for your proposal.

With this in mind, below is a list of the most common reasons cited by NIH reviewers for an application's lack of success ([NIH source](#)). While this list was generated from comments made by NIH reviewers, it is also relevant to submitting proposals to other federal research agencies. The common mistakes made by grant applicants and cited by reviewers are predominately generic rather than agency specific. ***Sadly, common mistakes made in research narratives are fungible across agencies and review panels.*** Reviewing and reflecting on the below list will provide excellent insights into what it takes to write a successful NIH application. Moreover, it offers an effective starting point for new faculty to discuss with their research mentor or with departmental colleagues successful at NIH. Discussing this list with an experienced colleague, or someone from a university research office able to further elaborate on the key points, can be a very helpful exercise in learning how to craft and write a compelling research narrative. Like many such lists, at first glance it may seem too cryptic, but an experienced colleague will be able to take this list as a starting point and complement it by offering elaboration, experienced-based detail, and nuance. The list notes the key reasons applications are denied funding, including:

- Lack of significance to the scientific issue being addressed.
- Lack of original or new ideas.

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- Proposal of an unrealistically large amount of work (i.e., an overly ambitious research plan).
- Scientific rationale not valid.
- Project too diffuse or superficial or lacking focus.
- Proposed project a fishing expedition lacking solid scientific basis (i.e., no basic scientific question being addressed).
- Studies based on a shaky hypothesis or on shaky data, or alternative hypotheses not considered.
- Proposed experiments simply descriptive and do not test a specific hypothesis.
- The proposal is technology driven rather than hypothesis driven (i.e., a method in search of a problem).
- Rationale for experiments not provided (why important, or how relevant to the hypothesis).
- Direction or sense of priority not clearly defined, i.e., the experiments do not follow from one another, and lack a clear starting or finishing point.
- Lack of alternative methodological approaches in case the primary approach does not work out.
- Insufficient methodological detail to convince reviewers the investigator knows what he or she is doing (no recognition of potential problems and pitfalls).
- Most experiments depend on success of an initial proposed experiment (so all remaining experiments may be worthless if the first is not successful).
- The proposed model system is not appropriate to address the proposed questions (i.e., proposing to study T-cell gene expression in a B-cell line).
- The proposed experiments do not include all relevant controls.
- Proposal innovative but lacking enough preliminary data.
- Preliminary data do not support the feasibility of the project or the hypothesis.
- Investigator does not have experience (i.e., publications or appropriate preliminary data) with the proposed techniques or has not recruited a collaborator who does.
- The proposal lacks critical literature references causing reviewers to think that the applicant either does not know the literature or has purposely neglected critical published material.
- Not clear which data were obtained by the investigator and which others have reported.

In addition to avoiding the above missteps, it is important to concurrently examine and evaluate the significance and innovation of your proposed planned research as defined in your Specific Aims section ([NIH Source](#)); for example, ask yourself:

- Would my reviewers see my proposed project as tackling an important problem in a significant field?
- Would they view my Specific Aims as capable of opening up new discoveries in my field?
- Would my reviewers regard the work as new and unique?
- Would they view my Specific Aims as likely to exert a significant influence on the research field(s) involved?
- Are my Specific Aims written clearly and are they easy to understand?

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Moreover, here, too, it is important to solicit outside opinions for a fresh perspective. Don't assume others, including your reviewers, will consider a research area to have the same priority that you do. Also, discuss your draft aims with colleagues who aren't in your field. If they can understand your project and get excited about it, you have a better chance your reviewers will as well. It is particularly useful to have your application reviewed by a colleague who has been successful in getting NIH funding, or better yet, has served on an NIH study section.

With the above in mind, an excellent entry point into the very large online universe of learning about NIH funding is here: [All About Grants: Tutorials and Samples](#), which will address the following seven key strategies for success at NIH as shown in the below screen capture.

## Strategy for NIH Funding

To secure funding for an NIH grant, you'll need sound guidance and a solid strategy. The Strategy takes you through all the steps from qualifying for NIH support to staying funded. Even more, it gives you specific "to do's" so you're prepared at every stage.



### Strategy Parts 1 through 7

#### Part 1. Qualify for NIH Funding

- [Strategy to Determine What Funding You Qualify For](#)

### Using the Strategy

- [Start Here to Use the Strategy for NIH Funding](#)—introduces the site and shows staff contacts
- [Strategy Timelines](#)—puts every Strategy timeline on one page

## The Grant Writer's Narrative Checklist

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

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The best strategy to avoid the common mistakes made in writing the research narrative is to correct them before you make them by anticipation and avoidance. At the least, it is helpful to start the process of writing the research narrative with a list of the characteristics of the poorly written research narrative and a list of the characteristics of the well written research narrative in mind. Moreover, if you learn by your mistakes as well as the mistakes of others, this list should grow and mature over time to become a very robust aggregate of what to do and what not to do in writing a research narrative. Of course, it is always preferred that you learn from the mistakes others have made in writing unsuccessful proposals, thereby avoiding reinventing the flat tire. Unfortunately, too many of us are experiential learners, a characterization familiar to anyone with teenage children, and seem destined to learn only from our own mistakes, but not those of others who offer us warnings that go unheeded.

Of course, a key preliminary step in this process is to avoid organizational mistakes in the research narrative from the get go, particularly as they relate to writing a research narrative that fails to respond fully to the funding solicitation. The most common unresponsive narratives are those that do not fully address the questions asked by the sponsor in the solicitation, or, too often, inexplicably answer questions that were not asked by the sponsor and have little or no relevance to the research goals and objectives detailed in the solicitation.

A good first step to ensure you write a well organized, fully responsive research narrative is to use the funding solicitation as a template to create the first draft of the proposal, thereby addressing the project goals and objectives, review criteria, and other referenced documents in the order and with the thoroughness expected by the sponsor. This initial template serves as the checklist ensuring that every question asked by the sponsor is fully addressed in the project narrative and in the order and context in which it was asked. This is particularly important because poorly structured and poorly organized narratives are excruciatingly difficult to correct.

Keep in mind that a well organized narrative is also a proportionally organized narrative. Proportionality brings balance to the project narrative in a way that establishes the relative importance, **or the weighted relevance**, of the topics you choose to address in explaining your research. For example, if buffers are not important to the research, don't belabor buffers. Proportionally allocate narrative space within the page limit of the proposal in a way that best reflects a **hierarchical ordering of the importance** of what you most need to communicate about the significance of your proposed research. A similar proportionality should be achieved between what is described in the research narrative and what is requested in the budget.

Another important preliminary step prior to writing is to clearly understand your audience and write a narrative accessible to that audience. Most likely your audience will be agency program officers and reviewers. Therefore, in characterizing your audience it is important to understand the review process itself and thereby gain insight into the likely composition of the review panel and the expertise each member of the panel brings to the

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review of your proposal. For example, is the review panel comprised of technical experts in a narrow field, or is it a more multidisciplinary panel required for cross disciplinary research, or does the panel include experts from outside the field that bring a broader perspective to judging the value of the research. Also, keep in mind that for larger research projects, a more diverse review panel may be required to address the multidisciplinary nature of the proposed research. Regardless, always write with a target audience in mind. In most cases the audience to have in mind is a “generic reviewer” who is scientifically literate but not an expert in the field.

With this in mind, consider prior to writing some of the common mistakes made in drafting the research narrative. It will benefit you to keep these in mind prior to writing rather than after the narrative has been completed:

- As you write, translate disciplinary jargon into plain English. Understanding your proposed research should not require members of the review panel to possess a *Captain Midnight Secret Decoder Ring* to make your narrative accessible to them.
- Get to the point of your research quickly in the narrative, preferably in the first paragraph or certainly on the first page, if the agency format allows it. Don’t bog down the narrative and the reviewers by writing a background section that reads like a long-winded history of the discipline starting with ancient Greek metaphysicians and plodding along century by century until, finally, you explain how this background culminates in your proposed research project.
- Keep in mind that successful proposals quickly answer some basic questions that are always asked by program officers and reviewers. Can you answer these questions about your proposed research in a **clear and simple narrative style** that explains your:
  - Research goals and objectives
  - Research plan
  - Significance of the research
  - Value-added benefits of the research and impact on an agency mission or a research field
  - Prior results/preliminary data that validate your capacity to perform
  - Barriers and challenges to achieving results and your plan for overcoming them
  - Payoffs from your success (answering the so-called “So What/Who Cares?” question).
- While writing in a **clear and simple** narrative style is difficult for even the most experienced writers, and typically requires multiple draft iterations to get it right, there are some common elements of the well-written narrative that must be kept in mind before, during, and after you write a first draft, for example:
  - **Write sentences that channel Ernest Hemingway, not William Faulkner.** Rhetoricians refer to Hemingway’s style or technique as parataxis, but in keeping with the advice in this article, “parataxis” is merely jargon for writing short, concise sentences, as opposed to Faulkner’s very long sentences that are meant to convey a hierarchy of dependent meanings, what rhetoricians might refer to as hypotactic polysyndeton. If you were explaining this in a proposal, in keeping with the spirit of this article, you would skip the jargon and simply state

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***“Hemingway writes short sentences and Faulkner writes long sentences.”*** The meaning is the same, but the jargon-free version makes the statement accessible to everyone. ***So how long a sentence should you write, you may ask?*** Einstein once said that *“everything should be made as simple as possible, but not simpler.”* The same might be said of sentence length in a proposal. It should be as long as required to communicate the key information, but no longer. For example, if your sentences are becoming overgrown with commas, semi-colons, coordinating conjunctions (e.g., and, but, for, or, etc.), and embedded and transitional phrases, somewhat like kudzu along Interstate 20 in Alabama and Georgia, it is time to break the long sentence up into shorter ones, no matter how proud you are of crafting it. Sentences in the range of 12 to 25 words are nicely succinct. If your sentence gets up to 35 to 40 words, it deserves a yellow caution light and an automatic review to find ways to shorten it. If your sentence word count gets in the range of 50, 60 or more words, that is a full red alert requiring the mandatory use of two or more periods ruthlessly applied! Overly long sentences choke the reader. Think of it like eating a navel orange—it is always best eaten in the sections nature intended rather than swallowed whole. Most importantly, ***excessively long sentences are not memorable to reviewers because they contain too many moving parts.*** Of course, a too long series of sentences may be memorable to the reviewers as the point in the proposal where they all became totally confused and exasperated with the author.

- **Specifics are good and generalities are bad.** Specifics serve both to test and prove the value of your ideas, and when they are lacking, it tells a reviewer that your ideas may also be lacking, or have yet to become fully developed. Stating a research goal, for example, without offering a specific research plan to transition the goal to an outcome, will leave the reviewers without the sufficient detail needed to judge the merits of your proposal. Generalities appear as glaring flaws to readers and reviewers alike, especially those searching for the specificity needed to make an informed critical judgment on the project’s merit. A narrative laced with generalities leaves the reader ***uncertain about what the proposer actually plans to do***--the reviewers’ equivalent of the ***“where’s the beef?”*** question. In effect, generalities represent an implied promise to accomplish something important if funded, but leave the actual performance details vague.
- **Superlatives are adjectives on steroids and must be stricken from the narrative.** Clarity and the lack of ambiguity are two of the most important characteristics of the successful proposal. Clarity is grounded on simplicity, detail, and specificity. Superlatives, on the other hand, are inherently ambiguous, ***substituting an amplified emotional appeal for specificity and detail.*** It may well be that your research is transformative, but a cascade of superlatives characterizing your research should ***originate from the reviewers rather than from you.***
- **The antidote for generalities and superlatives is to quantify your research narrative.** Numbers matter. Numbers are the basis of comparative claims that inform program officers and reviewers alike and allow them to better judge the relative worthiness of

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your proposal. The old adage about a picture being worth a thousand words applies to the judicious use of quantitative information or data in the project narrative. You don't want to overwhelm reviewers with a cascade of quantitative information, **but neither do you want to leave them frustrated by its absence**. In this regard, too much quantification can be as problematic as too little. So it is important to be mindful of reviewers' reluctance to sift through extensive quantitative data to determine the merit of your proposed project. That is not their job. It is the job of the author, however, to explain the significance of any data used in a narrative in the most economical way possible. Proposals are about ideas, and data need to be judiciously selected to support the merit of the ideas described in the narrative. **But data in and of themselves are not ideas**. Rather, your narrative needs to explain and illuminate the significant patterns in the data you present rather than pass that task onto reviewers.

- **Ambiguity introduces significant uncertainty into the research narrative**, although ambiguity in the narrative does offer one certainty—**an unfunded proposal**. This is because **ambiguity in the project description imposes unwanted riddles** on program officers and reviewers alike. Ambiguity originates from many sources, including ambiguous solicitations and researchers' ambiguous readings and understandings of a well-crafted solicitation, the latter being the most common source. Ambiguity may also originate at the interface between the agency's research vision, goals, and objectives and your research expertise and research interests. Ambiguity may arise when your research expertise does not map well to the agency mission priorities, or when you try to force fit your research expertise and interests to an agency solicitation, or when you ignore the agency research interests and put yours forward in hopes the program officers and reviewers won't notice the mismatch. **In the end, the cure for ambiguity lies in writing multiple drafts of a narrative**, taking care that each iteration of the proposal improves its clarity.
- **Use visuals to clarify and integrate the research narrative**. Just as the Feynman diagrams brought clarity to understanding the interactions of subatomic particles, on a less grand scale, diagrams, graphics, figures, tables, pictorial representations, and other visuals can play a key role as an integrator of the research narrative. This holds true particularly in the case of complex project descriptions whose narratives describe interaction among multiple research strands. The graphical representation of a research vision, or diagrams showing how the component goals and objectives of a large project interact to form a coherent, synergized whole, **can make the proposal narrative less challenging both to write and to read**. In fact, graphical representations of the main ideas of a proposal discussed and developed concurrently with the drafting of narrative text, can help the members of the research team write their contributions to the overall narrative with more clarity and focus than might otherwise be possible. The end goal, of course, is to achieve a project description that integrates narrative graphics and narrative text so closely as to make both easily accessible to review panels and program officers, especially in those cases where complex interactions among various research strands must be accessible and memorable. Good ideas deserve and benefit

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enormously from the illuminating interplay between well-crafted narrative text and accompanying graphics.

## NSF CMMI's Materials Reorganization

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By Lucy Deckard, co-publisher

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Many programs within NSF fund materials-related research. While this gives materials researchers a variety of options, it increases the need for PIs to do their homework and understand which program best fits their research project. Many materials researchers have applied to various programs, depending on the type of project they are proposing. Traditionally, the [Division of Materials Research \(DMR\)](#) within the [Math and Physical Sciences Directorate](#) has funded materials research that is on the very basic end of the spectrum, while programs within the [Engineering Directorate](#) have funded more application-driven materials research. However, it's important to understand that all of NSF programs, no matter the directorate in which they are housed, fund **research**, not **development**.

The [Division of Civil, Mechanical and Manufacturing Innovation \(CMMI\)](#) within the Engineering Directorate, which houses a number of materials-related programs, is reorganizing several of these programs to facilitate interdisciplinary review and reflect new directions in materials research. Effective September 1, 2013, for the purposes of new proposals CMMI **eliminated**

- [Materials Processing and Manufacturing \(MPM\)](#) - which was in the [Advanced Manufacturing cluster](#) in CMMI
- [Materials and Surface Engineering \(MSE\)](#) - which was in the [Mechanics & Engineering Materials cluster](#) in CMMI)
- [Structural Mechanics and Materials \(SMM\)](#) – which was also in the [Mechanics & Engineering Materials cluster](#)

and **replaced** these three programs with the [Materials Engineering and Processing Program \(MEP\)](#). (If you already have a grant from one of these programs, don't panic; your grant will continue to be administered by that program.) The reasoning behind this reorganization was that there was so much overlap between those programs, NSF felt that it made sense to bring them together into one program with three focus areas.

In addition, the NSF has established a new program, called [Design of Engineering Material Systems \(DEMS\)](#). This program will complement the NSF-wide [Designing Materials to Revolutionize and Engineer our Future \(DMREF\)](#) initiative (discussed at length in April 2012 issue of the newsletter) and will be focused on holistic system design. A description of each of these new programs follows.

### The Materials Engineering and Processing (MEP) Program

**Program Synopsis** (from the [program website](#), bold ours): The Materials Engineering and Processing (MEP) program supports fundamental research addressing the interrelationship of materials processing, structure, properties and/or life-cycle performance for targeted applications. Research proposals should be driven by the **performance or output of the material system relative to the targeted application(s)**. Research plans driven by scientific hypotheses are encouraged when suitable. Materials in bulk form or focus on special zones such as surfaces or interfaces that are to be used in structural and/or functional applications

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are appropriate. All material systems are of interest including polymers, metals, ceramics, semiconductors, composites and hybrids thereof. Analytical, experimental, and numerical studies are supported and collaborative proposals with industry (GOALI) are encouraged.

**Organization:** This program will be managed by three Program Directors, two of whom were formally Program Directors for the eliminated programs: MPM, MSE and SMM (the third has not yet been designated). MEP will have three topic areas:

- **Materials Processing:** Covers processes that convert material into useful form as either intermediate or final composition. These include processes such as extrusion, molding, casting, deposition, sintering, printing, etc. Proposed research should include the consideration of cost, performance, and feasibility of scale-up, as appropriate. Research that addresses multi-scale and/or multi-functional materials systems is encouraged, as is research in support of environmentally-benign manufacturing. (P.D. Mary Toney, formerly PD for MPM)
- **Structural Materials:** Covers materials that, in service, bear mechanical load. Length scales from nano to meso to macro are of interest as are materials in the bulk or in special configuration such as thin film, foam, density gradient, etc. These include materials such as metals, polymers, composites, biomaterials, ceramics, hybrids, cement, etc. Research that models the mechanical behavior of materials in the built environment is also considered. (P.D. Grace Hsuan, formerly P.D. for SMM)
- **Functional Materials:** Covers materials that possess native properties and functions that can be controlled by external stimuli such as temperature, light, electric field, pH, etc. These include materials that exhibit properties such as electronic, magnetic, piezoelectric, ferroelectric, photovoltaic, chromogenic, shape memory, thermoelectric or self-healing, etc. in any type of materials system. (P.D.: TBD, Mary Toney acting P.D.)

Note that as the PI, you will not need to identify which topic area to which to apply; just apply to MEP. The PDs will then decide who will handle the proposal. However, if you want to talk to a PD before applying, contact the PD in the topic area that you think best fits your research. In [NSF's webinar](#) about this new program, they also mentioned that projects on additive manufacturing which focus on the manufacturing process should be submitted to [Manufacturing Machines and Equipment](#), and that, while projects focusing on **pavement materials** may be submitted to MEP (Structural Materials focus), projects on **pavement system performance** are not appropriate for NSF, and should be submitted to the Department of Transportation. They also emphasized that MEP is currently open to all materials systems, although they said that may change. In addition, they mentioned that if you're trying to figure out what project scope and budget range is appropriate, check the history of the prior program (MPD, MSE or SMM) that best fit your research (you can do this by checking the NSF award database; go to the program page and scroll down to the "What has been funded" link). MEP will continue to coordinate with the [Division of Materials Research \(DMR\)](#), [Division of Chemical, Bioengineering, Environmental, and Transport Systems \(CBET\)](#) and the [Division of Electrical, Communications and Cyber Systems \(ECCS\)](#) to co-review and co-fund interdisciplinary proposals.

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## **The Design of Engineering Material Systems (DEMS) Program**

**Program Synopsis** (from the [program website](#), bold ours): The Design of Engineering Material Systems (DEMS) program supports fundamental research intended to lead to new paradigms of design, development, and insertion of advanced engineering material systems. Fundamental research that develops and creatively integrates theory, processing/ manufacturing, data/informatics, experimental, and/or computational approaches with rigorous engineering design principles, approaches, and tools to enable the accelerated design and development of materials is welcome.

Research proposals are sought that strive to develop **systematic scientific methodologies to tailor the behavior of material systems in ways that are driven by performance metrics and incorporate processing/manufacturing**. While an emphasis on a specific material system may be appropriate to provide the necessary project focus, **techniques developed should transcend materials systems**. Ultimately it is expected that research outcomes will be methodologies to enable the discovery of materials systems with new properties and behavior, and enable their rapid insertion into engineering systems.

Proposals that focus on modeling, simulation, and prediction of material performance (even when research is coupled with experiments for validation or guidance) **without an intellectual emphasis on design are not appropriate** for this program and should be submitted to other disciplinary programs.

**Organization:** Four PDs are listed on the website: Paul Collopy (also P.D. for [Engineering and System Design](#) and [Systems Science](#)); Grace Hsuan (also P.D. for MEP), Thomas Siegmund (also P.D. for [Mechanics of Materials](#), and Mary Toney (also P.D. for MEP and [BRIGE](#)). More details on how this program will be managed should be forthcoming in an [NSF webinar](#) on this new program, scheduled for September 17<sup>th</sup>.

## **Due Dates**

Proposal windows for both MEP and DEMS are the same as for the [rest of CMMI](#):

- September 1 – October 1 annually (proposals currently being accepted)
- January 15 – February 15<sup>th</sup> annually

## **Other Resources**

- An NSF webinar on the new MEP program was held on August 21, 2013. Slides are available at [here](#).
- **An NSF webinar on the new DEMS program is set for September 17, 2013** at 2 pm Eastern Time; go [here](#) to register.

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## Research Grant Writing Web Resources

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### Common Guidelines for Education Research and Development

*A Report from the Institute of Education Sciences, U.S. Department of Education and the National Science Foundation, August 2013*

Each year, the National Science Foundation (NSF) and the U.S. Department of Education (ED) make substantial investments in education research and development. Through these efforts, the agencies seek to improve opportunities to learn science, mathematics, engineering, and technology (STEM) and to increase student achievement, engagement and persistence in those areas. ED also supports research and evaluation in a range of areas other than STEM. Though complementary, the agencies' focus areas in education research differ in ways that correspond to their respective roles in government and society. NSF, which is charged with increasing the quality and amount of science and engineering research in a variety of contexts, has emphasized basic research on STEM learning, cognition, and development of instructional approaches, technologies, and materials in both formal and informal settings. In contrast, ED concentrates its investments on developing and testing the effectiveness of well-defined curricula, programs, and practices that could be implemented by schools. The complementary missions of the agencies, along with the continuing urgency of improving American students' STEM knowledge and skills, form the backdrop for the evidence guidelines and study types described in this document.

This document describes NSF and ED's shared understandings of the roles of various types or "genres" of research in generating evidence about strategies and interventions for increasing student learning. These research types range from studies that generate the most fundamental understandings related to education and learning (for example, about brain activity), to research that examines associations between variables, iteratively designs and tests components of a strategy or intervention, or is designed to assess impact of a fully-developed intervention on an education-related outcome. More specifically, the document describes the agencies' expectations for the purpose of each type of research, the empirical and/or theoretical justifications for different types of studies, types of project outcomes, and quality of evidence.

Fundamentally, these shared, cross-agency expectations are intended to (1) help organize and guide NSF's and ED's respective decisions about investments in education research and (2) clarify for potential grantees and peer reviewers the justifications for and evidence expected from each type of study, as well as relevant aspects of research design that would contribute to high-quality evidence. The primary audiences for this document are agency personnel, **scientific investigators who seek funding from these agencies for education research projects**, and those who serve as peer reviewers of proposals for scientific research.

## *Educational Grant Writing Web Resources*

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### What Does It Take to Scale Up Innovations?

Various education innovations are often proposed as solutions to the problems of education in the United States. Moving an innovation from a few schools to a great many, so it can have a regional or national impact, is very challenging, however. This brief discusses the problem of scaling innovations in education in the United States so that they can serve very large numbers of students. It begins with a general discussion of the issues involved, develops a set of five criteria for assessing challenges of scaling, and then uses three programs widely discussed in the U.S. as examples of the challenges involved: Teach for America (an approach to teacher development), KIPP (a whole-school reform model) and the Harlem Children's Zone (a school-plus-community model). Five criteria are applied to assess scalability: cost, human capacity, tools and infrastructure, political support, and external or non-school factors.

### Website: Assessing Secondary Teachers' Habits of Mind

Boston University, Education Development Center, Inc., and St. Olaf College are collaborating on *Assessing Secondary Teachers' Algebraic Habits of Mind* (ASTAHM) to develop instruments to assess secondary teachers' mathematical habits of mind (MHoM). These habits can bring parsimony, focus, and coherence to teachers' mathematical thinking and, in turn, to their work with students. Indeed, we envision MHoM as a critical component of mathematical knowledge for teaching at the secondary level. Recognizing the need for a scientific approach to investigate the ways in which MHoM is an indicator of teacher effectiveness, we are researching the following questions:

1. How do teachers who engage MHoM when doing mathematics for themselves also bring MHoM to their teaching practice?
2. How are teachers' engagement with MHoM and their use of these habits in teaching related to student understanding and achievement?

To investigate these questions, we are developing two instruments: a paper and pencil (P&P) assessment and an observation protocol that measure teachers' knowledge and classroom use, respectively, of MHoM. Our work fits into a larger research agenda with the ultimate goal of understanding the connections between secondary teachers' mathematical knowledge for teaching and secondary students' mathematical understanding and achievement. The MHoM construct is closely aligned with the Common Core, and especially its Standards for Mathematical Practice. For example, both place importance on seeking and using mathematical structure. Thus our instruments can act as pre- and post- measures of the effectiveness of professional development programs in preparing teachers to implement the Common Core. Mathematics teacher knowledge at the secondary level is an understudied field. Through analyses of the practices and habits of mind that teachers bring to their work, ASTAHM is developing instruments that can be used to shed light on effective secondary teaching.

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## **Agency Research News**

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### **[Design of Engineering Material Systems \(DEMS\) Program Webinar](#)**

**September 17, 2013 2:00 PM to**

**September 17, 2013 3:00 PM**

On Tuesday, September 17th, from 2-3 pm, CMMI is hosting a webinar To discuss & present the Design of Engineering Materials Systems(DEMS)program. The DEMS program supports fundamental research intended to lead to new paradigms of design, development, and insertion of advanced engineering material systems. Fundamental research that develops and creatively integrates theory, processing/manufacturing, data/informatics, experimental, and/or computational approaches with rigorous engineering design principles, approaches, and tools to enable the accelerated design and development of materials is welcome. During this webinar, potential proposers to the program will be able to learn more about DEMS and learn more about materials engineering and design research support by CMMI. Attendance is limited to 199 attendees, so prior registration is required. For those unable to watch the webinar live, the slides will be posted with a summary of any questions and answers on this announcement after the meeting.

**[Now Available: PHS 398 Application Forms and Instructions for Application Due Dates on or after September 25, 2013 and Updated Application Guides for Electronic Application Forms](#)**

**[Now Available: Modifications to NIH's Planned and Cumulative Inclusion Enrollment Forms](#)**

### **[Updates to NIH RePORT: Streamlined Search Form and More](#)**

The ReSource Newsletter provides information on recent reports of NIH-funded activities and is the primary source of news and information on the Research Portfolio and Online Reporting Tools (RePORT) website. [RePORT](#) provides access to reports, data, and analyses of NIH research activities, including information on NIH expenditures and the results of NIH-Supported research. RePORT is ever-expanding with new reports, tools, and concepts for displaying data. Look to The ReSource for the latest developments and handy tips and tricks for using the site and its tools.

### **[RFI - Fiber Reinforced Polymer Composite Manufacturing Golden Field Office](#)**

The purpose of this RFI is to solicit feedback from industry, academia, research laboratories, government agencies, and other stakeholders on issues related to fiber reinforced polymer composite manufacturing, specifically for continuous or discontinuous carbon and glass fiber composites with thermoset or thermoplastic matrix materials. AMO seeks information through this RFI to understand the cross-cutting manufacturing challenges that if addressed could reduce life cycle energy consumption and greenhouse gas emissions (GHG), support further adoption of clean energy systems and increase U.S. manufacturing competitiveness. This is solely a request for information and not a Funding Opportunity Announcement (FOA). EERE is not accepting applications. Responses to this RFI must be submitted electronically to [FRCManufacturing@go.doe.gov](mailto:FRCManufacturing@go.doe.gov) with a subject line "Response to RFI" **no later than 5:00pm**

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**(EDT) on September 26, 2013.** Responses must be provided as a Microsoft Word document (.docx or .doc) of no more than 8 pages in length, 12 point font, 1 inch margins as an attachment to an email. The full content of the announcement can be found on the EERE Exchange website at <https://eere-exchange.energy.gov> .

### **Dear Colleague Letter: Joint NSF/NOAA Agreement regarding the National Centers for Environmental Prediction and related AGS**

This letter announces opportunities in FY2014 and FY2015 to support the translation of research supported by the Division of Atmospheric and Geospace Sciences (AGS) to operations at the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Prediction (NCEP). AGS will provide support to enable the AGS research community to transition the basic research in which they are engaged to use in national operational activities at NCEP. This opportunity would support extended visits by AGS-supported investigators and research groups, including students and post-doctoral researchers to NOAA's NCEP. Support would be awarded in the form of a supplement to an existing NSF award. This opportunity provides AGS PIs an opportunity to advance their NSF-supported research by working closely with environmental scientists at NOAA's NCEP and having access to a wealth of real-time and archived datasets and computational facilities.

### **Mid-scale Infrastructure - NSFCloud Webinar**

The National Science Foundation's Directorate for Computer and Information Science and Engineering (CISE) invites you to attend a webinar (**Sept. 25**) to learn more about its recently released solicitation, *CISE Research Infrastructure: Mid-Scale Infrastructure - NSFCloud (CRI: NSFCloud)* (see NSF 13-602; <http://www.nsf.gov/pubs/2013/nsf13602/nsf13602.htm>).

Cloud computing in various forms has rapidly become the dominant method of providing computing infrastructure for Internet services. The success of the cloud computation model is changing network architectures. Access network providers are moving toward providing edge infrastructure that exploits virtualization, allowing for innovative ways of offering data, communication, and computation with an approach highly tuned to support new distributed and mobile applications. While most of the original innovations supporting cloud computing came from the academic community, much of the recent innovation in cloud architectures has been driven by industry because of the infrastructure requirements. Meanwhile, academic researchers are now considering a new generation of innovative applications of cloud computing and cloud computing architectures, including time- and safety-critical cyber-physical applications for medical devices, the power grid, and transportation, which require advances beyond the directions industry is pursuing. **September 25.**

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## *Agency Reports, Workshops & Research Roadmaps*

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### **Trends in the Innovation Ecosystem: Can Past Successes Help Inform Future Strategies? Summary of Two Workshops**

Trends in the Innovation Ecosystem is the summary of two workshops hosted by the Committee on Science, Engineering, and Public Policy (COSEPUP) of the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine in February and May, 2013. Experts from industry, academia, and finance met to discuss the challenges involved in innovation pathways. Both workshops focused on the interactions between research universities and industry and the concept of innovation as a "culture" as opposed to an operational method. The goal was to gain a better understanding of what key factors contributed to successful innovations in the past, how today's environment might necessitate changes in strategy, and what changes are likely to occur in the future in the context of a global innovation ecosystem. This report discusses the state of innovation in America, obstacles to both innovation and to reaping the benefits of innovation, and ways of overcoming those obstacles.

### **Launching a National Conversation on Disaster Resilience in America: Workshop (2013)**

With the increasing frequency of natural and human-induced disasters and the increasing magnitude of their consequences, a clear need exists for governments and communities to become more resilient. The National Research Council's 2012 report Disaster Resilience: A National Imperative addressed the importance of resilience, discussed different challenges and approaches for building resilience, and outlined steps for implementing resilience efforts in communities and within government. Launching a National Conversation on Disaster Resilience in America is a summary of a one-day event in November 2012 to formally launch a national conversation on resilience. Nationally-recognized experts in disaster resilience met to discuss developing a culture of resilience, implementing resilience, and understanding federal perspectives about resilience. This report includes a broad range of perspectives and experiences derived from many types of hazards and disasters in all parts of the country.

### **Messaging for Engineering: From Research to Action (2013)**

For those in the broad engineering community--those who employ, work with, and/or educate engineers, and engineers themselves--there is no need to explain the importance and value of engineering. They understand that engineers help make the world a better place for all, that they regularly grapple with important societal and environmental issues, and that the engineering process is every bit as creative as composing a symphony or crafting a piece of art. But the situation outside the engineering community is quite different. Studies have shown that most K-12 students and teachers have a limited appreciation of all the ways that engineering makes their lives better and, furthermore, that they have little understanding of what engineers do or of the opportunities that an engineering education offers.

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*Messaging for Engineering* supports efforts by the engineering community to communicate more effectively about the profession and those who practice it. This report builds on the 2008 NAE publication, *Changing the Conversation: Messages for Improving Public Understanding of Engineering* (CTC), which presented the results of a research-based effort to develop and test new, more effective messages about engineering.

The new messages cast engineering as inherently creative and concerned with human welfare, as well as an emotionally satisfying calling. This report summarizes progress in implementing the CTC messages, but also recognizes that there is potential to galvanize additional action and thus suggests specific steps for major players in the engineering community to continue and build on progress to date. Many of the report's recommendations resulted from discussion at a December 2010 committee workshop that involved several dozen high-level decision makers representing key stakeholder groups in the engineering community.

### [A Ready and Resilient Workforce for the Department of Homeland Security:](#)

Protecting America's Front Line (2013)

*A Ready and Resilient Workforce for the Department of Homeland Security: Protecting America's Front Line* reviews current workforce resilience efforts, identifies gaps, and provides recommendations for a 5-year strategy to improve DHS. Together, the current DHS workforce resilience program. This report stresses the importance of strong leadership, communication, measurement, and evaluation in the organization and recommends content for a 5-year plan that will promote centralized strategic direction and resource investment to improve readiness and resilience at the department. While all DHS component agencies share a common mission, each have distinct roles with different stressors attached, making implementation of an organization-wide resilience or wellness program difficult. The recommendations of *A Ready and Resilient Workforce for the Department of Homeland Security* outline how DHS can focus its efforts on creating a common culture of workforce readiness and resilience, while recognizing the distinct, proud, celebrated cultures of its component agencies.

### [Frontiers in Massive Data Analysis](#)

Frontiers in Massive Data Analysis examines the frontier of analyzing massive amounts of data, whether in a static database or streaming through a system. Data at that scale--terabytes and petabytes--is increasingly common in science (e.g., particle physics, remote sensing, genomics), Internet commerce, business analytics, national security, communications, and elsewhere. The tools that work to infer knowledge from data at smaller scales do not necessarily work, or work well, at such massive scale. New tools, skills, and approaches are necessary, and this report identifies many of them, plus promising research directions to explore. Frontiers in Massive Data Analysis discusses pitfalls in trying to infer knowledge from massive data, and it characterizes seven major classes of computation that are common in the analysis of massive data. Overall, this report illustrates the cross-disciplinary knowledge--from computer science, statistics, machine learning, and application disciplines--that must be brought to bear to make useful inferences from massive data.

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## ***New Funding Opportunities***

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### **Content Order**

*New Funding Posted Since August 15 Newsletter*

*Links to New & Open Funding Solicitations*

*Solicitations Remaining Open from Prior Issues of the Newsletter*

## **New Funding Solicitations Posted Since August 15 Newsletter**

### **Infrastructure Management and Extreme Events (IMEE)**

The NSF IMEE program focuses on the impact of large-scale hazards on civil infrastructure and society and on related issues of preparedness, response, mitigation, and recovery. The program supports research to integrate multiple issues from engineering, social, behavioral, political, and economic sciences. It supports fundamental research on the interdependence of civil infrastructure and society, development of sustainable infrastructures, and civil infrastructure vulnerability and risk reduction. **Full Proposal Window: September 1- October 1.**

### **Fiscal Year (FY) 2014 Department of Defense Multidisciplinary Research Program of the University Research Initiative**

The MURI program supports basic research in science and engineering at U.S. institutions of higher education (hereafter referred to as "universities") that is of potential interest to DoD. The program is focused on multidisciplinary research efforts where more than one traditional discipline interacts to provide rapid advances in scientific areas of interest to the DoD. As defined by the DoD, "basic research is systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. It includes all scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs. It is farsighted high payoff research that provides the basis for technological program. **White papers due October 15; full proposals due December 15.**

### **Bridges to Baccalaureate Program (R25)**

This Funding Opportunity Announcement (FOA) encourages Research Education Grant (R25) applications that propose research education programs intended to enhance the pool of community college students from diverse backgrounds nationally underrepresented in biomedical and behavioral sciences who go on to research careers in the biomedical and behavioral sciences, and will be available to participate in NIH-funded research. Key strategies are to increase transfer and increase retention to BA/BS graduation in biomedical and behavioral sciences. This initiative promotes partnerships/consortia between community colleges or other two-year post-secondary educational institutions granting the associate degree with colleges or universities that offer the baccalaureate degree. **Due October 18.**

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## **FY 2014 Defense University Research Instrumentation Program**

The Department of Defense (DoD) announces the Fiscal Year 2014 Defense University Research Instrumentation Program (DURIP), a part of the University Research Initiative (URI). DURIP is designed to improve the capabilities of U.S. institutions of higher education (hereafter referred to as “universities”) to conduct research and to educate scientists and engineers in areas important to national defense, by providing funds for the acquisition of research equipment. The **research areas of interest** to the administering agencies are available on-line at the following addresses:

### **Army Research Office:**

<http://www.aro.army.mil/> (select “Business” and then “Broad Agency Announcements”)

See the most recent ARO Core Broad Agency Announcement for Basic and Applied Scientific Research.

### **Office of Naval Research:**

<http://www.onr.navy.mil/> (select “Contracts and Grants” and then “Broad Agency Announcements”) See Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology 13-001.

### **Air Force Office of Scientific Research:**

See BAA AFOSR-2013-0001 Research Interests of the Air Force Office of Scientific Research available at

<http://www.grants.gov/search/search.do;jsessionid=x8BxRCpDJ7zJvMJvVs91VFPYjnJqzyJJvBHW51LmJy0D21yfSXTc!284756989?oppld=218055&mode=VIEW> .

**Due October 20.**

## **Collaborative Science, Technology, and Applied Research (CSTAR) Program**

The CSTAR Program represents an NOAA/NWS effort to create a cost-effective transition from basic and applied research to operations and services through collaborative research between operational forecasters and academic institutions which have expertise in the environmental sciences. These activities will engage researchers and students in applied research of interest to the operational meteorological community and will improve the accuracy of forecasts and warnings of environmental hazards by applying scientific knowledge and information to operational products and services. The CSTAR Program addresses NOAA's Mission Goal 3-- Weather Ready Nation. **Due October 31.**

## **NIH Bridges to the Doctorate (R25)**

This Funding Opportunity Announcement encourages Research Education Grant (R25) applications from institutions that propose to enhance the pool of master's degree students from underrepresented backgrounds who are trained and available to participate in NIH-funded research. This initiative promotes partnerships/consortia between colleges or universities granting a terminal master's degree with institutions that offer the doctorate degree. The program expects that the joint efforts of doctorate degree-granting and master's degree-granting institutions will foster the development of a well-integrated institutional program that will provide students with the necessary academic preparation and skills to enable their

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transition and successful completion of the Ph.D. degree in biomedical and behavioral sciences. **Due November 1.**

### [Fellowships at The Huntington 2014-2015](#)

The Huntington will award to scholars over 150 fellowships for the academic year 2014-2015. These fellowships derive from a variety of funding sources and have different terms. Recipients of all fellowships are expected to be in continuous residence at the Huntington and to participate in and make a contribution to its intellectual life. **Due by Nov. 15.**

### [2014 Ford Foundation Post Doctoral Fellowships](#), Application Due by November 15.

### [2014 Ford Foundation Dissertation Fellowships](#), Application Due by November 15.

### [2014 Ford Foundation Predoctoral Fellowships](#), Applications Due by November 20.

### [East Asia and Pacific Summer Institutes for U.S. Graduate Students \(EAPSI\)](#)

NSF and selected foreign counterpart science and technology agencies sponsor international research institutes for U.S. graduate students in seven East Asia and Pacific locations at times set by the counterpart agencies between June and August each year. The Summer Institutes (EAPSI) operate similarly and the research visits to a particular location take place at the same time. Although applicants apply individually to participate in a Summer Institute, awardees become part of the cohort for each location. Applicants must propose a location, host scientist, and research project that is appropriate for the host site and duration of the international visit. **Due November 25.**

### [NSF Science, Engineering and Education for Sustainability Fellows \(SEES Fellows\)](#)

Through the SEES Fellows Program, NSF seeks to advance science, engineering, and education to inform the societal actions needed for environmental and economic sustainability and human well-being while creating the necessary workforce to address these challenges. The Program's emphasis is to facilitate investigations that cross traditional disciplinary boundaries and address issues of sustainability through a systems approach, building bridges between academic inquiry, economic growth, and societal needs. The Fellow's proposed investigation must be interdisciplinary and allow him/her to obtain research experiences beyond his/her current core disciplinary expertise. Fellows are required to develop a research partnership(s) that will advance and broaden the impact/scope of the proposed research, and present a plan for their own professional development in the area of sustainability science and engineering. Proposals with a primary focus on topics covered by the Directorate for Engineering ([ENG](#)) are considered "out of scope" for this revised solicitation; however, proposals may include such topics as a secondary (or tertiary) focus. **Due November 26.**

### [NSF/DOE Partnership in Basic Plasma Science and Engineering](#)

The Directorates for Engineering (Division of Chemical, Bioengineering, Environmental & Transport Systems), Geosciences (Division of Atmospheric and Geospace Sciences) and

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Mathematical and Physical Sciences (Divisions of Astronomical Sciences and Physics) of the National Science Foundation (NSF) and the Office of Science/Office of Fusion Energy Sciences (SC/FES) of the Department of Energy (DOE) are continuing in FY2014 the joint Partnership in Basic Plasma Science and Engineering begun in FY1997 and continued in FY2000, FY2003, FY2006 and FY2009. As stated in the original solicitations (NSF 97-39, NSF 99-159, NSF 02-84, NSF 05-619, NSF 09-596), which are superseded by the present solicitation, the goal of the initiative is to enhance plasma research and education in this broad, multidisciplinary field by coordinating efforts and combining resources of the two agencies. The current solicitation also encourages submission of proposals to perform basic plasma experiments on the Large Aperture Plasma Device (LAPD) at the University of California, Los Angeles (UCLA), a unique user facility designed to serve the needs of the broader plasma community. **Due November 26.**

### **NSF Science, Engineering and Education for Sustainability Fellows**

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### **NEH Sustaining Cultural Heritage Collections**

Sustaining Cultural Heritage Collections (SCHC) helps cultural institutions meet the complex challenge of preserving large and diverse holdings of humanities materials for future generations by supporting preventive conservation measures that mitigate deterioration and prolong the useful life of collections. Libraries, archives, museums, and historical organizations across the country are responsible for collections of books and manuscripts, photographs, sound recordings and moving images, archaeological and ethnographic artifacts, art, and historical objects that facilitate research, strengthen teaching, and provide opportunities for life-long learning in the humanities. To preserve and ensure continued access to such collections, institutions must implement preventive conservation measures, which encompass managing relative humidity, temperature, light, and pollutants in collection spaces; providing protective storage enclosures and systems for collections; and safeguarding collections from theft and from natural and man-made disasters. As museums, libraries, archives, and other collecting institutions strive to be effective stewards of humanities collections, they must find ways to implement preventive conservation measures that are scientifically sound and sustainable. This program therefore helps cultural repositories plan and implement

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preservation strategies that pragmatically balance effectiveness, cost, and environmental impact. Such a balance can contribute to an institution's financial health, reduce its use of fossil fuels, and benefit its green initiatives, while ensuring that significant collections are well cared for and available for use in humanities programming, education, and research. **Due December 3.**

### **Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP)**

The Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP) seeks to increase the number of students (U.S. citizens or permanent residents) receiving associate or baccalaureate degrees in established or emerging fields within science, technology, engineering, and mathematics (STEM). Type 1 proposals are solicited that provide for full implementation efforts at academic institutions. Type 2 proposals are solicited that support educational research projects on associate or baccalaureate degree attainment in STEM. **Due December 3.**

### **Discovery Research K-12 (DRK-12)**

The Discovery Research K-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 innovative resources, models and tools (RMTs). 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. Teachers and students who participate in DRK-12 studies are expected to enhance their understanding and use of STEM content, practices and skills. 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 pre-K 12 teaching and learning. The DRK-12 program has four major research and development strands: (1) Assessment; (2) Learning; (3) Teaching; and (4) Implementation Research. The program recognizes that there is some overlap among the strands. Proposals may address more than one strand. For example, projects in the Learning Strand may also include assessments of student learning, and/or support for teachers and plans for larger dissemination and use. Likewise, the Teaching Strand has a specific focus on RMTs for teacher education and professional development, but these are often based on a particular curriculum or set of instructional materials or tools. The Implementation Research strand that replaces the Scale-up strand in the previous solicitation might potentially address any or a combination of the other three strands. The program supports three types of projects: (1) Exploratory, (2) Full Design and Development, and (3) Conferences, Workshops, and Syntheses. All three types of projects apply to each of the four DRK-12 strands. **Due December 6.**

### **Partnerships for Innovation: Accelerating Innovation Research- Research Alliance**

The NSF Partnerships for Innovation (PFI) program within the Division of Industrial Innovation and Partnerships (IIP) is an umbrella for two complementary subprograms, Accelerating Innovation Research (AIR) and Building Innovation Capacity (BIC). Both programs are concerned with the movement of academic research discoveries into the marketplace, although each

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focuses on different stages along the innovation spectrum. The PFI:AIR program has two additional subprograms: the PFI:AIR-Technology Translation (See NSF 13-575) and PFI:AIR-Research Alliance (this solicitation). This PFI: AIR-Research Alliance (RA) solicitation is intended to accelerate the translation and transfer of existing research discoveries into competitive technologies and commercial realities by leveraging the investments NSF has made in research alliances (e.g., consortia such as Engineering Research Centers, Industry University Cooperative Research Centers, Science and Technology Centers, Nanoscale Science and Engineering Centers, Materials Research Science and Engineering Centers, Centers for Chemical Innovation, Emerging Frontiers in Research and Innovation grantees and others) and catalyzing academic-based innovation ecosystems. The goal is that these synergistic partnerships and collaborations between government, academia, and other public and private entities will result in new wealth and the building of strong local and regional economies. WEBINAR: A webinar will be held within 6 weeks of the release date of this solicitation to answer any questions about this solicitation. Details will be posted on the IIP website (<http://www.nsf.gov/eng/iip/pfi/index.jsp>) as they become available. **Required LOI due December 13; full due February 12.**

### **Stanton Nuclear Security Fellowship**

Nuclear security is one of the greatest challenges facing the world today. The spread of nuclear weapons to unstable and hostile states, the risk of conflict between nuclear armed nations, and the potential for terrorist groups to acquire nuclear arms all demand new thinking and creative policy solutions. The Stanton Nuclear Security Fellowship (SNSF) Program, made possible by a generous grant from the Stanton Foundation, offers younger scholars studying nuclear security issues the opportunity to spend a period of twelve months at the Council on Foreign Relations' (CFR) offices in New York or Washington, DC, conducting policy-relevant research. CFR awards up to three fellowships annually. The fellowships will be awarded on the basis of academic and professional accomplishments and promise, and on the merits of the specific research projects proposed. The fellows could work on a wide range of issues, including nuclear terrorism, nuclear proliferation, nuclear weapons, nuclear force posture, and, as it relates to nuclear security, nuclear energy. While in residence full-time at CFR, fellows will be expected to lead a project of their own design, conduct original research, and write at least one policy relevant document. Fellows are expected to participate fully in CFR's intellectual life. The scholars selected as SNSFs will be mentored by the fellows of CFR's David Rockefeller Studies Program. **Due December 16.**

### **Ocean Sciences Research Initiation Grants (OCE-RIG), Broadening Participation**

The Division of Ocean Sciences (OCE) offers Research Initiation Grants in an effort to increase the participation of under-represented groups in the ocean sciences. Research Initiation Grants provide start up funding for researchers who have been recently appointed to tenure track (or equivalent) positions, with the twin goals of enhancing the development of their research careers and broadening the participation of under-represented groups in ocean sciences. In this solicitation, the term under-represented groups will refer to and include the following: veterans, persons with disabilities, African Americans, Hispanics, Native Americans, Alaska Natives, and Pacific Islanders. **Due January 13.**

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## International Affairs Fellowship in Nuclear Security

The International Affairs Fellowship in Nuclear Security (IAF-NS), sponsored by the Stanton Foundation, offers university-based scholars valuable hands-on experience in the nuclear security policymaking field and places selected fellows in U.S. government positions or international organizations for a period of twelve months to work with practitioners. The IAF-NS closes the gap between research and practice and enriches the teaching and scholarship of academics, while also benefiting policymakers by exposing them to cutting-edge scholarly research. The Council on Foreign Relations (CFR) awards approximately two fellowships annually. The fellowships will be awarded on the basis of academic and professional accomplishments, and on the contribution the fellowship will make to the applicant's academic career development. Potential topics appropriate for the fellowship include nuclear terrorism, nuclear proliferation, nuclear weapons, nuclear force posture, security implications of nuclear energy, international security cooperation, deterrence, and war and conflict. During their fellowship tenures, fellows will be invited to attend CFR meetings and participate in select events, such as the annual International Affairs Fellows Conference in New York City. **Due January 17.**

## Catalyzing New International Collaborations (CNIC)

The CNIC program will support US researchers' participation in activities intended to catalyze **new** international collaborations designed to open up new scientific directions for the proposer. These include, but are not limited to: research planning visits, initial data gathering activities, proof-of-concept, single or multiple visits within a maximum 12-month time period to plan a new international research collaboration, or exploratory workshops designed to bring together US and non-US-based researchers representing several institutions and focused on a topic specified in the Project Description. Generally, CNIC-supported workshops will include between 10-25 individuals, of whom roughly half will be from the US, and are usually expected to take place abroad. However, in special circumstances, they may take place within the US if they include substantial international participation and are held for the purpose of establishing new international collaborations. **Due January 22.**

## Minerva Research Initiative Office of Naval Research

The Office of Naval Research (ONR) is interested in receiving proposals for the Minerva Research Initiative (<http://minerva.dtic.mil>), a DoD-sponsored, university-based social science research program initiated by the Secretary of Defense. This program is a multi-service effort. Ultimately, however, funding decisions will be made by OSD personnel, with technical inputs from the Services. The program focuses on areas of strategic importance to U.S. national security policy. It seeks to increase the Department's intellectual capital in the social sciences and improve its ability to address future challenges and build bridges between the Department and the social science community. Minerva brings together universities, research institutions, and individual scholars and supports multidisciplinary and cross-institutional projects addressing specific topic areas determined by the Department of Defense. The Minerva Research Initiative aims to promote research in specific areas of social science and to promote a

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candid and constructive relationship between DoD and the social science academic community.  
**White Papers Due November 18; full proposal February 14.**

## [NEH Landmarks of American History and Culture: Workshops for School Teachers](#)

The Landmarks of American History and Culture program supports a series of one-week residence-based workshops for a national audience of K-12 educators. NEH Landmarks of American History and Culture Workshops use historic sites to address central themes and issues in American history, government, literature, art, music, and related subjects in the humanities. Each workshop is offered twice during the summer. Workshops accommodate forty school teachers (NEH Summer Scholars) at each one-week session. **Due March 4.**

## [NEH Summer Seminars and Institutes](#)

These grants support faculty development programs in the humanities for school teachers and for college and university teachers. NEH Summer Seminars and Institutes may be as short as two weeks or as long as five weeks. **Due March 4.**

## ***Links to New & Open Funding Solicitations***

*Links verified: Monday, July 08, 2013*

- [American Cancer Society Index of Grants](#)
- [SAMHSA FY 2013 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 2013 Science To Achieve Results \(STAR\) Research Grants](#)
- [NASA Open Solicitations](#)
- [Defense Sciences Office Solicitations](#)
- [The Mathematics Education Trust](#)
- [EPA Open Funding Opportunities](#)
- [CDMRP FY 2013 Funding Announcements](#)
- [Office of Minority Health](#)

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

## **Solicitations Remaining Open from Prior Issues of the Newsletter**

### **USDA FY-2014 SBIR**

The USDA SBIR program is carried out in three separate phases. Phase I is to determine the scientific or technical feasibility of ideas submitted by applicants on research topic areas described in section 8.0 of this solicitation. This program solicitation is only for the preparation and submission of Phase I applications. Phase I awards may not exceed \$100,000.00 for a period normally not to exceed eight (8) months. However, longer grant periods, of up to 20 months, may be considered if the proposed research project will require more than 8 months to complete. The Phase I application should concentrate on research that will significantly contribute to proving the scientific or technical feasibility of the approach or concept and will be a prerequisite to further USDA support in Phase II. Similar to the changes USDA made last year, phase I award size has been raised to \$100,000 and the program is now managed by National Institute of Food and Agriculture (NIFA). NIFA has five societal challenge areas that relate to the overall topics. The NIFA Societal Challenge Areas are: 1) Global Food Security and Hunger, 2) Climate Change, 3) Sustainable Bioenergy, 4) Childhood Obesity, and 5) Food Safety. Special consideration will be given to applications that address one of these priorities under the Project Narrative, item (2) under subsection 3.3.3.-Field 8, Responsiveness to USDA SBIR Program Priorities and Societal Challenge Areas. **Due September 26.**

### **NEH Summer Stipends**

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Summer Stipends support individuals pursuing advanced research that is of value to humanities scholars, general audiences, or both. Recipients usually produce articles, monographs, books, digital materials, archaeological site reports, translations, editions, or other scholarly resources. Summer Stipends support full-time work on a humanities project for a period of two months. Summer Stipends support projects at any stage of development. Summer Stipends are awarded to individual scholars. Organizations are not eligible to apply. **Due September 26.**

### **NEH Summer Stipends**

Summer Stipends support individuals pursuing advanced research that is of value to humanities scholars, general audiences, or both. Recipients usually produce articles, monographs, books, digital materials, archaeological site reports, translations, editions, or other scholarly resources. Summer Stipends support continuous full-time work on a humanities project for a period of two months. Summer Stipends support projects at any stage of development. Summer Stipends are awarded to individual scholars. **Due September 26.**

### **Dissertation Proposal Development Fellowship (DPDF) Faculty Field Competition**

The Dissertation Proposal Development Fellowship (DPDF) Faculty Field Competition is open to tenured humanities and social sciences faculty interested in creating or reinvigorating interdisciplinary fields of study through the training of the next generation of researchers. Selected research directors guide the development of effective doctoral dissertation proposals within innovative fields by helping fellows sharpen the focus of their research and identify appropriate methods of investigation and analysis. **Deadline October 1.**

### **Innovation in Archives and Documentary Editing**

The National Historical Publications and Records Commission seeks projects that are exploring innovative methods to improve the preservation, public discovery, or use of historical records. Projects may also focus on techniques and tools that will improve the professional performance and effectiveness of those who work with such records, such as archivists, documentary editors, and records managers. Projects must anticipate results that will affect more than a single institution or a single state. Projects may focus on methods of working with records in any format, including born-digital records. Projects designed to publish historical records must focus on innovative methods of presenting archival records as primary sources. The Commission does not fund projects focused on artifacts or books. For a comprehensive list of the Commission's limitations on funding, please see [What We Do and Do Not Fund](#). Applications that consist entirely of ineligible activities will not be considered. **Due October 3.**

### **Education Dissertation Fellowship Program**

The Dissertation Fellowship Program seeks to encourage a new generation of scholars from a wide range of disciplines and professional fields to undertake research relevant to the improvement of education. These \$25,000 fellowships support individuals whose dissertations show potential for bringing fresh and constructive perspectives to the history, theory, or practice of formal or informal education anywhere in the world. This highly competitive program aims to identify the most talented researchers conducting dissertation research

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related to education. The Dissertation Fellowship program receives many more applications than it can fund. This year, up to 600 applications are anticipated and about 25 fellowships will be awarded. **Due Oct. 4.**

### Partnerships for Innovation: Accelerating Innovation Research- Technology Translation (PFI: AIR-TT)

The NSF Partnerships for Innovation (PFI) program within the Division of Industrial Innovation and Partnerships (IIP) is an umbrella for two complementary subprograms, Accelerating Innovation Research (AIR) and Building Innovation Capacity (BIC). In the final analysis, both programs are concerned with the movement of academic research discoveries into the marketplace although each focuses on different stages along the innovation spectrum. The subject of this solicitation is PFI: AIR Technology Translation (TT) only. The PFI: AIR-TT solicitation is intended to help bridge the funding gap between existing research discoveries that validate relevant science and engineering fundamentals and their translation through proof-of-concept, prototype, or scale-up along a path toward commercialization and engage faculty and students in entrepreneurial/innovative thinking. WEBINAR: A webinar will be held within 6 weeks of the release date of this solicitation to answer any questions about this solicitation. Details will be posted on the IIP website <http://www.nsf.gov/eng/iip/pfi/index.jsp> as they become available. **Due October 7.**

### Healthy Schools: Environmental Factors, Children's Health and Performance, and Sustainable Building Practices

The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking applications proposing research that will inform school (K-12 educational facilities) building design, construction and operation practices in order to foster safe and healthy school environments and maximize student achievement and teacher and staff effectiveness. Specifically, the goal is to understand the relationship between environmental factors defined broadly and the health, safety and performance of students, teachers and staff. In addition to health-related concerns, the school environment may similarly impact the performance of students, teachers and staff, including lowering student achievement outcomes, and reducing teacher effectiveness. Accordingly, research is needed to better understand the negative impacts of the school environment on students' health, safety, and achievement, and to measure the positive potential benefits of effectively managing environmental factors and applying sustainable building practices. The results of this research will help ensure that the risks of environmentally-induced illness and injury to America's students, teachers and other school staff are diminished or avoided and that students, teachers and staff are provided with optimal learning environments in their schools. **Due October 8.**

### Doctoral Dissertation Improvement Grants in the Directorate for Biological Sciences (DDIG)

The National Science Foundation awards Doctoral Dissertation Improvement Grants in selected areas of the biological sciences. Proposals must fall within the scope of any of the clusters in the Division of Environmental Biology (DEB) or the Behavioral Systems Cluster in the Division of Integrative Organismal Systems (IOS). These grants provide partial support of doctoral

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dissertation research for improvement beyond the already existing project. Allowed are costs for doctoral candidates to participate in scientific meetings, to conduct research in specialized facilities or field settings, and to expand an existing body of dissertation research. **Due October 10.**

### **The Digital Manufacturing and Design Innovation (DMDI) Institute**

This effort pertains to applied research only. On behalf of the AMRDEC, ACC-RSA is soliciting concept papers and proposals which provide detailed examples of applied research project focus areas, technology transition plans for applications, proposed infrastructure and a sustainable business plan. The technical focus area of the Institute will be Digital Manufacturing and Design Innovation. Submissions must demonstrate that the proposed Institute has the potential to significantly advance manufacturing within the United States. Applicants shall address proposals to the contracting Point of Contact (POC) stated in Section VII of the Full Text Announcement. This is a restricted solicitation limited to a U.S. non-profit organization to serve as the award recipient to lead a Digital Manufacturing and Design Innovation (DMDI) Institute. The Government encourages small businesses to participate in any or all parts of this solicitation through teaming arrangements with the recipient. **Due October 11.**

### **Center of Excellence: Nature-Inspired Sciences**

AFOSR invites the submission of proposals for a University Center of Excellence (CoE) for Nature-Inspired Sciences. The center will be established in collaboration with AFRL Munitions Directorate (Eglin AFB, FL). This research effort should consist of interdisciplinary teams of researchers with the skills needed to address the relevant research challenges necessary to meet the program goals. Multi-investigator and/or multi-university teaming is encouraged but not required. Proposals should describe cutting-edge efforts on basic scientific principles and problems. The recipient of this award must be an educational institution in the US as defined by 10 USC 2194. Proposals should be prepared as indicated below. The duration of the proposed effort will be a two-year base period with two two-year option periods to bring the total maximum term of the award to six years. This is a Broad Agency Announcement. No formal Request for Proposals (RFP) or other solicitation regarding this announcement will be made. **Due October 15.**

### **Lightweight and Modern Metals Manufacturing Innovation (LM3I) Institute**

The Government intends for this solicitation to support the establishment of a Lightweight and Modern Metals Manufacturing Innovation (LM3I) Institute that will advance the state of processing and fabrication technologies for lightweight and modern metals by facilitating the transition between basic/early research and full-scale production of associated materials, components and systems. This research activity generally falls within a manufacturing readiness level (MRL) range of 4 to 7. These manufacturing advancements in-turn spur the integration of new material, component and system designs for defense and commercial applications. The Government seeks proposals to this announcement that describe the proposed infrastructure, technical applications and sustainable business plan for the Institute, to include providing

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detailed example research project focus areas and technology transition plans supporting DoD and other high value governmental and commercial applications. **Due October 15.**

### **DOD FY13 Care for the Critically Injured Burn Patient II**

The Combat Casualty Care Research Program (CCCRP) is focused on leveraging cutting edge research and knowledge to address existing and emerging gaps in combat casualty care. The objective of this Program Announcement/Funding Opportunity is to explore innovative approaches to accelerate the translation of advances in knowledge into new standards of care for the treatment of the injured warfighter who sustains burn injuries. The results of the research funded through FY13 Care for the Critically Injured Burn Patient II (CCIBPII) Program Announcement/Funding Opportunity are expected to increase the body of knowledge available to professionals and practitioners in health, medical science and related fields. To be considered for funding, applications for the FY13 CCIBPII must address one of the Topic Areas listed in this Program Announcement/Funding Opportunity. **Due October 16.**

### **Special Program Announcement for 2013 Office of Naval Research Opportunity: Select Topics in Materials Research Technology**

This announcement describes a research thrust, entitled “Select Topics in Materials Research Technology,” to be launched under the ONRBAA13-001, Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology which can be found at <http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>. The research opportunity described in this announcement specifically falls under the following sections of ONR BAA13-001: Topic #1 - Powder-Processing of Large Metal Structural Components: Section I, entitled “General Information”, sub-section 6, entitled “Research Opportunity Description”, the “Sea Warfare and Weapons Department (Code 33)” item, paragraph 2), subparagraph b, entitled “Structural Materials”. Topic #2 - Applied Research in Scaling Promising Dielectric Films for Wound Film Capacitors: Section I, entitled “General Information”, sub-section 6, entitled “Research Opportunity Description”, the “Sea Warfare and Weapons Department (Code 33)” item, paragraph 2), subparagraph a, entitled “Functional Materials”. **Due October 17.**

### **Fiscal Year 2014 NOAA Gulf of Mexico Bay-Watershed Education and Training Program**

The National Marine Fisheries Service Southeast Region (Fisheries Southeast Regional Office) is seeking proposals under the Gulf of Mexico B-WET Program. The Gulf of Mexico B-WET program is an environmental education program that promotes locally relevant, experiential learning in the K-12 environment. Funded projects provide Meaningful Watershed Educational Experiences (MWEEs) for students, related professional development for teachers, and help to support regional education and environmental priorities in the Gulf of Mexico. This program addresses NOAA's Long-Term Goal of “Healthy Oceans: Marine fisheries, habitats, and biodiversity are sustained within healthy and productive ecosystems” and NOAA’s Engagement Enterprise Objective for “An engaged and educated public with an improved capacity to make scientifically informed environmental decisions”. **Due October 18.**

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## National Academy of Education/Spencer Postdoctoral Fellowship Program

The National Academy of Education/Spencer Postdoctoral Fellowship Program supports early career scholars working in critical areas of education research. This nonresidential postdoctoral fellowship funds proposals that make significant scholarly contributions to the field of education. The program also develops the careers of its recipients through professional development activities involving National Academy of Education members. **Due November 1.**

## NSF Graduate Research Fellowship Program

The purpose of the NSF Graduate Research Fellowship Program is to help ensure the vitality and diversity of the scientific and engineering workforce of the United States. The program recognizes and supports outstanding graduate students who are pursuing research-based master's and doctoral degrees in fields within NSF's mission. The GRFP provides three years of support for the graduate education of individuals who have demonstrated their potential for significant achievements in science and engineering research. **Due Dates Nov. 4-8.**

## International Dissertation Research Fellowship (IDRF)

The Mellon International Dissertation Research Fellowship (IDRF) offers nine to twelve months of support to graduate students in the humanities and humanistic social sciences who are enrolled in PhD programs in the United States and conducting dissertation research on non-US topics. Eighty fellowships are awarded annually. Fellowship amounts vary depending on the research plan, with a per-fellowship average of \$20,000. The fellowship includes participation in an SSRC-funded interdisciplinary workshop upon the completion of IDRF-funded research.

**Accepting applications beginning August 12<sup>th</sup> 2013.** Applications must be complete and submitted online before 9:00pm (EST) on **November 7, 2012.**

## Partnerships for Innovation: Building Innovation Capacity (PFI: BIC)

The Partnerships for Innovation: Building Innovation Capacity (PFI:BIC) program supports academe-industry partnerships, which are led by an interdisciplinary academic research team with a least one industry partner, to collaborate in building technological and human innovation capacity. This innovation capacity is intended to endure beyond the initial award. Partnerships that build the capacity to innovate are expected to be effective at innovating and able to continue to innovate. They are highly intentional about creating an environment that fosters innovation. These partnerships not only develop new technology but also foster the development of human capital that embraces a culture of change, nurtures the generation of new ideas, and considers feedback an integral part of the innovation processes. Partnership members are diverse, representing a spectrum of backgrounds, perspectives, and skills. Partnership activities that drive sustained innovation include the targeted allocation of resources such as capital, time, facilities; and sharing of knowledge in a cross-organizational and interdisciplinary context. **LOI required Nov. 18; full January 27.**

## NSF/NIH/USDA Ecology and Evolution of Infectious Diseases (EEID)

The Ecology and Evolution of Infectious Diseases program supports research on the ecological, evolutionary, and socio-ecological principles and processes that influence the transmission

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dynamics of infectious diseases. The central theme of submitted projects must be quantitative or computational understanding of pathogen transmission dynamics. The intent is discovery of principles of infectious disease transmission and testing mathematical or computational models that elucidate infectious disease systems. Projects should be broad, interdisciplinary efforts that go beyond the scope of typical studies. They should focus on the determinants and interactions of transmission among humans, non-human animals, and/or plants. This includes, for example, the spread of pathogens; the influence of environmental factors such as climate; the population dynamics and genetics of reservoir species or hosts; or the cultural, social, behavioral, and economic dimensions of disease transmission. Research may be on zoonotic, environmentally-borne, vector-borne, or enteric diseases of either terrestrial or freshwater systems and organisms, including diseases of animals and plants, at any scale from specific pathogens to inclusive environmental systems. Proposals for research on disease systems of public health concern to developing countries are strongly encouraged, as are disease systems of concern in agricultural systems. Investigators are encouraged to involve the public health research community, including for example, epidemiologists, physicians, veterinarians, food scientists, social scientists, entomologists, pathologists, virologists, or parasitologists with the goal of integrating knowledge across disciplines to enhance our ability to predict and control infectious diseases. **Due November 20.**

### **FY2014 Demonstration of a U.S. Marine Biodiversity Observation Network (Marine BON)**

This funding opportunity (NOAA-NOS-IOOS-2014-2003803) invites proposals for projects that demonstrate how an operational Marine Biodiversity Observation Network (Marine BON) could be developed for the nation by establishing one or more prototype networks in U.S. coastal waters, the Great Lakes, and the EEZ. Biological diversity, or biodiversity, is defined as the variety of life, encompassing variation at all levels of complexity – genetic, species, ecosystems, and biomes – and including functional diversity and diversity across ecosystems. A growing body of research demonstrates that 1) the maintenance of marine biodiversity (including coastal biodiversity) is critical to sustained ecosystem and human health and resilience in a globally changing environment, and 2) the condition of marine biodiversity offers a proxy for the status of ocean and coastal ecosystem health and ability to provide ecosystem services. Thus, managing our marine resources in a way that conserves existing marine biodiversity would help address other ocean management objectives (Palumbi et al. 2009). For example, it would provide information to enhance biosecurity against threats such as invasive species and infectious agents, enable predictive modeling, better inform decision making, and allow for adaptive monitoring and Ecosystem-Based Management. As stated in the final recommendations of the Interagency Ocean Policy Task Force, it is the policy of the United States to protect, maintain, and restore the health and biological diversity of ocean, coastal, and Great Lakes ecosystems and resources ([http://www.whitehouse.gov/files/documents/OPTF\\_FinalRecs.pdf](http://www.whitehouse.gov/files/documents/OPTF_FinalRecs.pdf)). The Census of Marine Life, which concluded in 2010, greatly enhanced our understanding of the status of marine biodiversity. It also made clear the importance of clear-cut, systematic and sustainable approaches to observing and monitoring biodiversity across different levels and at a national scale. In May 2010, the Biodiversity Ad Hoc Group under the Interagency Working Group on

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Ocean Partnerships convened a workshop of experts to develop a plan and recommendations for attaining an operational marine biodiversity observation network (Marine BON) for the nation. The full workshop report can be found online: [http://www.nopp.org/wp-content/uploads/2010/03/BON\\_SynthesisReport.pdf](http://www.nopp.org/wp-content/uploads/2010/03/BON_SynthesisReport.pdf) . In May 2013, workshop steering committee members published a paper in BioScience on the feasibility of establishing a Marine BON (<http://www.jstor.org/stable/pdfplus/10.1525/bio.2013.63.5.8.pdf>). **Due December 2.**

### NEH Collaborative Research Grants

Collaborative Research Grants support interpretive humanities research undertaken by a team of two or more scholars, for full-time or part-time activities for periods of a minimum of one year up to a maximum of three years. Support is available for various combinations of scholars, consultants, and research assistants; project-related travel; field work; applications of information technology; and technical support and services. All grantees are expected to communicate the results of their work to the appropriate scholarly and public audiences. **Due December 5.**

### NEH Scholarly Editions and Translations Grants

Scholarly Editions and Translations grants support the preparation of editions and translations of pre-existing texts and documents of value to the humanities that are currently inaccessible or available in inadequate editions. These grants support full-time or part-time activities for periods of a minimum of one year up to a maximum of three years. Projects must be undertaken by a team of at least one editor or translator and one other staff member. Grants typically support editions and translations of significant literary, philosophical, and historical materials, but other types of work, such as musical notation, are also eligible. **Due December 5.**

### ONRBAA13-021: Basic Research in Spatial Sensing Scene Characterization Technology

The Office of Naval Research (ONR) is interested in receiving proposals for efforts that will advance and demonstrate science and technology for the next generation electronics and devices under the following focus area: Electronics technology enablers for wideband Simultaneous Transmit and Receive (STAR) capabilities Background The need for concurrent military antenna operations across wide spectral ranges in heavily congested electromagnetic environments continues to expand. Steady advances in RF and mixed-signal electronics technology continue to fuel increased system performance capabilities through the use of higher operating frequencies and broader bandwidths. Higher resolution for active sensors/imagers, higher data rate terrestrial and satellite communications links, and more effective electronic warfare (EW) and Information Operations (IO) are a few of the advances that high-speed electronics continues to enable. Many solid state device technologies from Silicon to Gallium Nitride, Niobium to Photonics, are contributing to these military system advances. Significant electronic challenges arise when these EW/IO, communications and radar systems are required to operate concurrently, with both transmit and receive functionality utilizing either a single aperture or multiple apertures. **Due December 11.**

### National Robotics Initiative (NRI)

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The goal of the National Robotics Initiative is to accelerate the development and use of robots in the United States that work beside, or cooperatively with, people. Innovative robotics research and applications emphasizing the realization of such co-robots acting in direct support of and in a symbiotic relationship with human partners is supported by multiple agencies of the federal government including the National Science Foundation (NSF), the National Aeronautics and Space Administration (NASA), the National Institutes of Health (NIH), and the U.S. Department of Agriculture (USDA). The purpose of this program is the development of this next generation of robotics, to advance the capability and usability of such systems and artifacts, and to encourage existing and new communities to focus on innovative application areas. It will address the entire life cycle from fundamental research and development to manufacturing and deployment. Methods for the establishment and infusion of robotics in educational curricula and research to gain a better understanding of the long term social, behavioral and economic implications of co-robots across all areas of human activity are important parts of this initiative. Collaboration between academic, industry, non-profit and other organizations is strongly encouraged to establish better linkages between fundamental science and technology development, deployment and use. **Due December 11.**

### **Programming Grants to Accompany NEH on the Road Exhibitions**

These grants support ancillary public humanities programs to accompany NEH on the Road traveling exhibitions. Typical formats involve lectures, reading and discussion programs, film discussion programs, Chautauqua presentations by scholars, family programs, exhibition tours, and other appropriate formats for reaching the general public. **Due December 31.**

### **National Digital Newspaper Program**

NEH is soliciting proposals from institutions to participate in the National Digital Newspaper Program (NDNP). NDNP is creating a national digital resource of historically significant newspapers published between 1836 and 1922, from all the states and U.S. territories. This searchable database will be permanently maintained at the Library of Congress (LC) and be freely accessible via the Internet. (See the website, *Chronicling America: Historic American Newspapers*.) An accompanying national newspaper directory of bibliographic and holdings information on the website directs users to newspaper titles available in all types of formats. During the course of its partnership with NEH, LC will also digitize and contribute to the NDNP database a significant number of newspaper pages drawn from its own collections. **Due January 15.**

### **National Geospatial-Intelligence Agency Academic Research Program**

The National Geospatial-Intelligence Agency (NGA) is releasing this solicitation for its **sponsored academic research program**. This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Department of Defense (DoD) Grant and Agreement Regulations (DoDGARs) 22.315(a). Awards will take the form of grants. However, other instruments may be considered as appropriate based on the proposals. **Open to September 30, 2013.**

### **Research Interests of the Air Force Office of Scientific Research**

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

### **Research Interests of the Air Force Office of Scientific Research**

AFOSR solicits proposals for basic research through this general Broad Agency Announcement (BAA). This BAA outlines the Air Force Defense Research Sciences Program. AFOSR invites proposals for research in many broad areas. These areas are described in detail in Section I, Funding Opportunity Description. AFOSR is seeking unclassified, white papers and proposals that do not contain proprietary information. We expect our research to be fundamental. **Open until superseded.**

### **DARPA Innovative Systems for Military Missions**

The Tactical Technology Office of the Defense Advanced Research Projects Agency is soliciting executive summaries, white papers and proposals for advanced research and development of Innovative Systems for Military Missions. This solicitation seeks system and subsystem level technologies that enable revolutionary improvements to the efficiency and effectiveness of the military. Novel concepts are sought in the following focus areas: Ground Systems, Maritime Systems, Air Systems, and Space Systems. Proposals may be submitted at any time while this solicitation is open. TTO may publish groups of special topics as modifications to this BAA throughout the year. **Open to April 9, 2014.**

### **DARPA Defense Sciences Research and Technology**

DARPA is soliciting innovative research proposals of interest to the Defense Sciences Office. Proposed research should investigate innovative approaches that enable revolutionary advances in science and technology. Specifically excluded is research that results primarily in evolutionary improvements to the existing state of the art. **Open to May 22, 2014.**

### **Climate Change Adaptation Program (GPAP)**

One important effect of global climate change is the reduction in naturally stored water resources which, for Peru, means melting glaciers and a decrease in the size of highland wetlands (paramos). The loss of these areas decreases water availability for upland and lowland communities and increases the potential for Glacial Lake Outburst Floods (GLOFs). This APS seeks to stimulate adaptation projects that assist indigenous mountain communities, rural and urban areas, and local and regional governments potentially affected by GLOFs or changes in water availability. General project outcomes will be long-term, sustainable approaches that help reduce the impact of climate change on glaciated and highland wetland ecosystems and on those that depend on these ecosystems' services. **Open to June 6, 2014.**

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### [DARPA Strategic Technology Office \(STO\) Broad Agency Announcement \(BAA\)](#)

DARPA is seeking innovative ideas and disruptive technologies that offer the potential for significant capability improvement across the Strategic Technology Office (STO) focus areas. This includes system and technology development related to Battle Management (BM), Command and Control (C2), Communications, Intelligence, Surveillance, and Reconnaissance (ISR), Electronic Warfare (EW), and Positioning, Navigation and Timing (PNT). Technologies of particular interest would address challenges of operating in contested, denied, and/or austere environments. **Open until June 18, 2014.**

### [DARPA-BAA-13-32: Information Innovation Office \(I2O\) Office-Wide BAA](#)

The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals of interest to the Information Innovation Office (I2O). Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of the art. I2O seeks unconventional approaches that are outside the mainstream, undertaking directions that challenge assumptions and have the potential to radically change established practice. See Full Announcement, DARPA-BAA-13-32 (I2O Office Wide) pdf for further details. **Open until June 25, 2014.**

### [DARPA Microsystems Technology Office-Wide](#)

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

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

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

### [Army Engineer Research and Development Center BAA](#)

The U.S. Army Engineer Research and Development Center (ERDC) has issued a Broad Agency Announcement (BAA) for various research and development topic areas. The ERDC consists of the Coastal and Hydraulics Lab (CHL), the Geotechnical and Structures Lab (GSL), the Environmental Lab (EL) and the Information Technology Lab (ITL) in Vicksburg, Mississippi; the Cold Regions Research and Engineering Lab (CRREL) in Hanover, New Hampshire; the Construction Engineering Research Lab (CERL) in Champaign, Illinois; and the Topographic

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Engineering Center (TEC) in Alexandria, Virginia. The ERDC is responsible for conducting research in the broad fields of hydraulics, dredging, coastal engineering, instrumentation, oceanography, remote sensing, geotechnical engineering, earthquake engineering, soil effects, vehicle mobility, self-contained munitions, military engineering, geophysics, pavements, protective structures, aquatic plants, water quality, dredged material, treatment of hazardous waste, wetlands, physical/mechanical/ chemical properties of snow and other frozen precipitation, infrastructure and environmental issues for installations, computer science, telecommunications management, energy, facilities maintenance, materials and structures, engineering processes, environmental processes, land and heritage conservation, and ecological processes. ***This research is conducted by Government personnel and by contract with educational institutions, non-profit organizations and private industries.*** The BAA is available at <http://erdc.usace.army.mil/> and is open until superseded. Proposals may be accepted at any time. For questions regarding proposals to CHL, EL, GSL, TEC & ITL, contact Allison Hudson at 601-634-5233 or via email at [Allison.B.Hudson@usace.army.mil](mailto:Allison.B.Hudson@usace.army.mil) . For questions concerning proposals to CERL, contact Jim Dowling at 217-373-4479 or via email at [james.p.dowling@usace.army.mil](mailto:james.p.dowling@usace.army.mil) or Andrea Krouse at 217-373-6746 or via email at [andrea.j.krouse@usace.army.mil](mailto:andrea.j.krouse@usace.army.mil) . For questions concerning proposals to CRREL, contact Wendy Adams at 603-646-4323 or via email at [Wendy.A.Adams@usace.army.mil](mailto:Wendy.A.Adams@usace.army.mil) . Contact the technical personnel listed at the end of each topic area for questions concerning the topic areas themselves. **Open to January 31, 2014.**

### **Science, Technology, Engineering & Mathematics BAA**

ERDC solicits basic research proposals in the general DoD STEM Education and Outreach Program from colleges, universities, and non-profit organizations. Depending upon the availability of appropriated funds, ERDC may: (1) Make multiple awards under this BAA; and (2) Consider options exercisable for multi-year performance. Area of performance for proposals may be limited to one of the selected locations listed above or may address multiple locations. Funding is limited and proposals are primarily sought in the not-to-exceed \$30,000 range; however, larger awards may be considered when appropriate. Geographically targeted. **Open to January 31, 2014.**

### **Small University Grants Open 5-Year Broad Agency Announcement**

**Open to August 26, 2015**

### **Nuclear Energy University Programs - Fellowship and Scholarship**

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

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

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

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

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

## [ARL Core Broad Agency Announcement for Basic and Applied Scientific Research for Fiscal Years 2012 through 2017](#)

### **Air Force Research Laboratory, Directed Energy Directorate [University Small Grants Broad Agency Announcement](#)**

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

### [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

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

### **Research Interests of the Air Force Office of Scientific Research**

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

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

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

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

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## **Academic Research Funding Strategies, LLC** ([Page 1](#))

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### **What We Do--**

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

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- Assistance for [new and junior faculty](#) - help in identifying funding opportunities and developing competitive research proposals, particularly to NSF CAREER, DoD Young Investigator and other junior investigator programs
- Facilities and Instrumentation - Assistance in identifying and competing for [grants to fund facilities and instrumentation](#)
- Training for Staff - [Professional Development](#) for research office and sponsored projects staff

### **Workshops by Academic Research Funding Strategies**

We offer workshops on research development and grant writing for faculty and research professionals based on all published articles.

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