

NJIT Research Newsletter

Issue: ORN-2018-04

NJIT Research Newsletter includes recent awards, and announcements of research related seminars, webinars, national and federal research news related to research funding, and **Grant Opportunity Alerts**. The Newsletter is posted on the NJIT Research Website <http://www.njit.edu/research/>.

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Grant Opportunity Alerts

Keywords and Areas Included in the Grant Opportunity Alert Section Below

NSF: Integrative Strategies for Understanding Neural and Cognitive Systems; Cultivating Cultures for Ethical STEM; Cyberinfrastructure for Sustained Scientific Innovation (CSSI) - Data and Software; Antarctic Research; Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)

NIH: Cutting-Edge Basic Research Awards (CEBRA) (R21); Lab to Marketplace: Tools for Brain and Behavioral Research (R43/R44); Innovation Corps (I-Corps™) at NIH Program for NIH and CDC Translational Research; Understanding and Modifying Temporal Dynamics of Coordinated Neural Activity (R21); NEI Collaborative Clinical Vision Research Project: Coordinating Center Grant (UG1- Clinical Trial Required); BRAIN Initiative: Biology and Biophysics of Neural Stimulation (R01)

Department of Defense/US Army/DARPA/ONR: FY 2018 Office of Naval Research (ONR) Navy and Marine Corps Science, Technology, Engineering & Mathematics (STEM), Millimeter-Wave Digital Arrays (MIDAS); Education and Workforce Program; Fiscal Year (FY) 2018 Funding Opportunity Announcement (FOA) for the Office of Naval Research (ONR); C4ISR, Information Operations and Information Technology System Research; Secretary of the Air Force (SecAF) 2030 Science and Technology (S&T) Study; Defense Enterprise Science Initiative (DESI)

Department of Energy: OPEN 2018; State Energy Program 2017 Competitive Awards

NASA: Astrophysics Research and Analysis; NASA Fellowship Activity 2018

National Endowment of Humanities: Institutes for Advanced Topics in the Digital Humanities

Streamlyne Update: New How-to-do Videos

Special Announcements

Internal Competition for Institutional Submission for NSF INCLUDES Grant Opportunity

Grant Program: Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)

Agency: National Science Foundation NSF 18-529

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18529/nsf18529.htm>

Brief Description: NSF INCLUDES (Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science) is a comprehensive national initiative designed to enhance U.S. leadership in science, technology, engineering, and mathematics (STEM) discoveries and innovations by focusing on broadening participation in these fields at scale. The vision of NSF INCLUDES is to catalyze the STEM enterprise to collaboratively work for inclusive change, which will result in a STEM workforce that reflects the population of the Nation. The initiative is developing a National Network composed of NSF INCLUDES Design and Development Launch Pilots, NSF INCLUDES Alliances, an NSF INCLUDES Coordination Hub, NSF-funded broadening participation projects, other relevant NSF-funded projects, scholars engaged in broadening participation research, and other organizations that support the development of talent from all sectors of society to build an inclusive STEM workforce.

Please see the Grant Opportunity section for additional information.

Limit on Number of Proposals per Organization: An organization may serve as the lead institution on only one Alliance proposal. Organizations that serve as the lead institution on an Alliance proposal may still participate in other Alliance proposals as a collaborating institution. In the event that an organization exceeds the limit of one proposal as lead, proposals received within the limit will be accepted based on earliest date and time of proposal submission. No exceptions will be made.

Internal Competition: Please submit a pre-proposal for internal competition to your college dean(s) by **February 1**. College deans are requested to forward the proposals with their reviews and recommendations by **February 7**. After the institutional review, the selected pre-proposal will be announced by **February 15**. The pre-proposal should be up to 5 pages excluding cover page, budget with justification and NSF format biographical sketches of PI and Co-PIs in the following format (please follow the guidelines in the above RFP):

1. **Cover Page** with title and information of key investigators of the alliance
2. **Summary** of the proposal with Intellectual Merit and Broader Impact
3. **Vision:** Every NSF INCLUDES Alliance proposal should describe the vision of what the Alliance aspires to achieve. What will be different in the landscape of broadening participation in STEM as a result of the efforts of this Alliance?
4. **Partnerships:** Partnerships and networks are at the heart of the NSF INCLUDES National Network, and Alliance proposals should include a plan for creating a platform for partnerships and collaborative action that includes a "backbone" or support organization. How will the Alliance partners engage an expansive community in a shared vision of the importance and power of broadening participation for scientific innovation? Why is the partnership that is being developed the right partnership to achieve the vision?
5. **Goals and Metrics:** Alliance proposals should delineate how the partnerships and networks will develop and be driven by shared goals, available evidence from research that forms the basis for the plans, and the metrics and milestones that define the pathway to achieving the vision. Robust data collection plans and implementation research will

need to be included, to facilitate evidence-based decision making and adjustments as the Alliance matures.

6. **Leadership and Communication:** Alliance proposals should provide details for how the Alliance will build and strengthen capacity for leadership and communication among collaborating organizations and individuals to create opportunities and enact inclusion in STEM.
7. **Expansion, Sustainability and Scale:** Finally, Alliance proposals should discuss how the collaborative infrastructure building process will ultimately lead to: expansion (more partners joining the movement), sustainability (more long-term connections being made), and implementation of change at scale (a likelihood for collaborative change to lead to change on a broad scale).

Awards: Standard Grants; **Anticipated Funding Amount:** \$8,500,000

Letter of Intent: Not Required

Submission Deadline: April 04, 2018

Contacts: General inquiries may be addressed to:, telephone: (703)292-7303, email: nsfincludes@nsf.gov

NSF Proposal & Award Policies & Procedures Guide (PAPPG),
NSF 18-1: Effective January 29, 2018

Editorial changes have been made to either clarify or enhance the intended meaning of a sentence or section. The document has been updated to ensure consistency with data contained in NSF systems or guidance located in other NSF or Federal policy documents. Throughout the PAPPG, website, address and document references and organizational names have been updated to reflect current information.

SIGNIFICANT CHANGES

- **Chapter I.E, Who May Submit Proposals**, incorporates new coverage on the eligibility of international branch campuses of US institutions of higher education. The definition of colleges and universities in Chapter I.E.1 has been updated to now refer to institutions of higher education, for consistency with 2 CFR § 200. In addition, changes have been made to the eligibility requirements for foreign organizations.
- **Chapter II.C.1.e, Collaborators & Other Affiliations Information**, has been significantly revised to request information regarding collaborators and other affiliations (COA) be provided through use of a standard NSF COA template. Footnotes also have been added to address frequently asked questions relating to the new COA template.
- **Chapter II.C.2.d, Project Description**, has been modified to reflect that the Project Description must now contain a separate section specifically identified as "Intellectual Merit".
- **Chapter II.C.2.g, Budget and Budget Justification**, has been revised to increase the number of pages allowed for the budget justification to no more than five pages per proposal. This change applies to budget justifications for both proposers and subawardees.
- **Chapter VII.A.2, Grantee Notifications to NSF**, has been restructured to remove information on requests for NSF approval. In addition, Exhibit VII-1 has been deleted, as coverage on grantee requests for approval from NSF is contained in the Research Terms and Conditions Appendix A and Chapter X.A.3.

- **Chapter X.A.3, Prior Written Approvals**, has been updated to reference the Research Terms and Conditions Appendix A, which is the authoritative source of NSF prior approval requirements.

CLARIFICATIONS AND OTHER CHANGES

- **Section B, Foreword**, has been modified to refer to the applicable standard grant conditions, instead of solely the NSF Grant General Conditions, now that the Research Terms and Conditions have been implemented.
- **Section D, Definitions & NSF-Grantee Relationships**, provides additional guidance on the types of cooperative agreements awarded by NSF.
- **Section E, NSF Organizations**, has been revised to reflect the current responsibilities of the organizations that are normally of most direct interest to the NSF proposer and grantee community.
- **Chapter II.C.1.f, Submission of Proposals by Former NSF Staff**, incorporates new coverage to address submission of proposals from former NSF staff and the procedures that must be followed in such circumstances.
- **Chapter II.C.2.d(iii), Results from Prior NSF Support**, clarifies the timeframe during which any PI or co-PI that has received NSF support must report on such funding. Chapter II.E.7 on conference proposals, II.E.8 on equipment proposals, II.E.9 on travel proposals and Exhibit II-1, the Proposal Preparation Checklist, also have been updated with this guidance.
- **Chapter II.C.2.g(i)(a), Senior Personnel Salaries & Wages Policy**, has been supplemented with guidance that reflects it is the proposing organization's responsibility to define and apply the term "year" and include the definition in the budget justification.
- **Chapter II.C.2.g(viii), Indirect Costs**, has been updated to state that amounts for indirect costs should be specified in the budget justification.
- **Chapter II.C.2.j, Special Information and Supplementary Documentation**, includes additional guidance on the content for data management plans that involve collaborative activities.
- **Chapter II.D.4, Proposals Involving Vertebrate Animals**, has been revised to enhance the clarity of guidance on the use of vertebrate animals for research or education on NSF supported projects. For projects at an international organization that involve the use of vertebrate animals, a statement from the international organization will need to be provided.
- **Chapter II.D.5, Proposals Involving Human Subjects**, has been supplemented with additional language regarding international projects.
- **Chapters II.D.6 and XI.B.5, Life Sciences Dual Use Research of Concern (DURC)**, include new coverage regarding NSF's funding of research that would be considered to lead to a gain of function of agents. The title of these sections also has been changed for consistency with the US Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.
- **Chapter II.E.11, Research Infrastructure Proposal**, has been revised to reflect current practices and provide greater clarity in the description of these types of proposals.
- **Exhibit II-1, Proposal Preparation Checklist**, has been updated to reflect relevant changes made to Chapter II of the PAPPG. Additional checklist components also have been added to assist proposers in the pre-submission administrative review of proposals to NSF.

- **Chapter V, Renewal Proposals**, has been modified to update reference information regarding recompetition of expiring awards. Section B on Accomplishment-Based Renewals has been updated to provide greater clarity regarding the submission of reprints.
- **Chapter VII.B.2.e, Substitute (Change) PI/PD or co-PI/co-PD**, has been supplemented with guidance on the reappointment of prior NSF staff as PI.
- **Chapter VII.B.3, Subawarding or Transferring Part of an NSF Award (Subaward)**, has been modified for consistency with terminology in 2 CFR § 200.
- **Chapter VII.D.2, Final Project Report**, has been updated to reflect that when PIs submit the report, they are indicating that the scope of work is complete and no further administrative actions are anticipated on the grant.
- **Chapter VIII.E.6, Award Financial Reporting Requirements and Final Disbursements**, has been supplemented to clarify the intent of NSF notifications regarding canceling appropriations.
- **Chapter X.B, Direct Costs and X.C, Other Direct Costs**, have been modified to remove coverage that is redundant with 2 CFR § 200 and other sections of the PAPPG. Terminology on rearrangement and reconversion costs has been updated for consistency with 2 CFR § 200.462.
- **Chapter XI.A, Non-Discrimination Statutes and Regulations**, has been revised to provide current information on NSF grantee obligations to comply with civil rights laws and regulations. These changes provide NSF grantees and applicants for NSF grants with an overview of relevant civil rights regulatory obligations and compliance mechanisms. Information also has been included on how grantee program participants can file complaints with NSF alleging discrimination in an NSF grantee's programs.
- **Chapter XI.B.1, Human Subjects and XI.B.3, Vertebrate Animals**, include the relevant new award-specific condition on organizational responsibilities. In addition, language has been added on post-award responsibilities.
- **Chapter XI.D.1.d, Intellectual Property**, has been updated to specify that grantees are required to use iEdison to disclose NSF subject inventions. In addition, NSF now reserves the option to request an Annual Utilization Report or a Final Invention Statement and Certification.
- **Chapter XI.M.4, Executive Order 13788, Buy American and Hire American**, is a new section which serves as NSF's implementation of Executive Order 13788.

New PAPPG is posted on the website

https://www.nsf.gov/pubs/policydocs/pappg18_1/sigchanges.jsp

Change of Grants.gov Software for Proposal Submission to NIH

Beginning January 1, 2018, all grant applicants must use Workspace to submit applications through [Grants.gov](https://www.grants.gov). Office of Research and IST staff members have updated the Streamlyne system to align with Grants.gov Workspace system for submission of proposals to NIH. Since the response from Workspace system would be a learning experience for everyone, it is critical that timeline for proposal submission policy is completely followed to allow enough time for addressing any error or system delays. Faculty and staff submitting proposals as Principal Investigators are requested to work with Office of Research ambassadors and staff to following the following timeline:

- 2 weeks before due date the budget should be finalized and the approval proposal process should be initiated. This includes the Department approval and conflict of interest forms with the PI's and Department Chair's signature, the detailed budget and justification, proposal title, and preliminary specific aims (NIH), proposal summary (NSF), or contract scope of work (SOW).
- 1 week before the due date, all approvals should be entered in the Streamlyne system
- 72 hours prior to submission the SRA will initiate a proposal review and check for submission errors. For this to occur, all portions of the proposal should be completed and ready for submission with the exception of the proposal narrative. Only a draft of the proposal is needed at this point as a place holder for error checking.
- 48 hours prior to the deadline, the PI should release the final version of the proposal to the SRA office for final system validation and on-time submission.

Any questions should be directed to ambassadors or Office of Research staff as listed at the end of this newsletter.

Recent Research Grant and Contract Awards

Congratulations to faculty and staff on receiving research grant and contract awards!

PI: Iulian Neamtiu (PI)

Department: Cybersecurity Center

Grant/Contract Project Title: ARL CRA: MACRO: Models for Enabling Continuous Reconfigurability of Secure Missions

Funding Agency: ARL

Duration: 09/20/16-09/19/18

PI: Brittany Hamfeldt (PI)

Department: Mathematical Sciences

Grant/Contract Project Title: CAREER: Generated Jacobian Equations in Geometric Optics and Optimal Transport

Funding Agency: NSF

Duration: 07/01/18-06/30/23

In the News...

(National and Federal News Related to Research Funding and Grant Opportunities)

Supremacy in High-Tech Defense: The nation needs "new and aggressive investment in and accelerated development of autonomous systems, artificial intelligence and machine learning, space protection and defense, electronic warfare, hypersonics, advanced computing, strategic weapons, and nuclear command and control," Mike Griffin, aerospace engineer and former NASA administrator, told the [Senate Armed Services Committee](#) Jan. 18. By voice vote Jan. 23, the panel cleared Griffin's nomination as under secretary of defense for research and

engineering and that of William Roper to be Air Force assistant secretary for acquisition. Both men "stressed the need for the Department of Defense to improve its ability to transition projects rapidly from R&D into successful acquisition programs," the American Institute of Physics's FYI reports. https://www.aip.org/fyi/2018/dod-nominees-griffin-and-roper-outline-defense-technology-needs-hearing?utm_medium=email&utm_source=FYI&dm_i=1ZJN,5F7TI,E29SF8,KZN40,1

Manufacturing Funding: The Office of Naval Research intends to make awards totalling \$5.4 million as part of a new congressionally authorized manufacturing engineering education program. Three awards are expected, each getting up to \$600,000 a year for up to three years. **See the announcement.** "Proposed efforts should develop and enhance curricula and programs to effectively develop skills sets needed for students to operate in multidisciplinary design and manufacturing environments, including those for which manufacturing schema are informed by computational tools for modeling and simulation." <https://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements>

A Spur to Innovation in Solar The [U.S. Department of Energy](#) (DOE) is launching a challenge-based prize competition in partnership with the [National Renewable Energy Laboratory](#) (NREL) to reenergize innovation in U.S. manufacturing. The American-Made Challenge incentivizes the nation's entrepreneurs to reassert American leadership in the energy marketplace. This new challenge seeks to lower the barriers U.S.-based innovators face in reaching manufacturing scale by accelerating the cycles of learning from years to weeks, while helping to create partnerships that connect entrepreneurs to the private sector and the network of DOE's National Laboratories across the nation. The American-Made Challenge will bring together the world's best in class research base with its unparalleled entrepreneurial support system consisting of pioneering maker spaces, dozens of energy incubators and 17 National Laboratories to create a sweeping portfolio of innovations primed for private investment and commercial scale up. <https://americanmadechallenge.org/>

Drop in International Graduate Students: "Most recently, data from SEVIS show an overall 6% decline in international graduate students from fall 2016 to fall 2017. . . . In 2017, 62% of all international students in graduate programs at U.S. institutions were enrolled in S&E fields. Between fall 2016 and fall 2017, the number of international graduate students enrolled in S&E fields decreased most in computer sciences (from 70,600 to 61,500) and engineering (from 96,300 to 89,000). The number of international students enrolled in mathematics increased (from 15,800 to 18,100) and remained at fairly similar levels in other S&E fields." "The top sending locations in 2017 continued to be India and China, accounting for 69% of the international S&E graduate students in the United States, followed by Iran, South Korea, Saudi Arabia, and Taiwan"

Energy Innovation: Patents Increase: "The number of U.S. Patent and Trade Office patents granted in sustainable energy technologies doubled between 2009 and 2015. Six technologies—solar, hybrid and electric vehicles, smart grid, fuel cell, battery, capture and storage of carbon and other greenhouse gases—have led growth of these patents," the Indicators report. "U.S. inventors received the largest share of sustainable energy patents in 2016 (43%), followed by Japan (20%), and the EU (16%). Patenting by U.S. inventors has been led by four technologies—hybrid and electric vehicles, solar, smart grid, and energy storage," "Patents granted to South Korea more than quadrupled between 2009 and 2016, led by growth in energy storage, solar, hybrid/electric, and battery technologies."

"Overall, the United States is the largest producer of high-technology manufacturing output with China being the largest global producer in the ICT manufacturing industries."

DOD and Engineering R&D: According to data collected by the Coalition for National Security Research, the Defense Department is the largest funder of university R&D in: computer and Information sciences; materials science; aerospace, aeronautical, and astronautical engineering; electrical, electronic, and communications engineering; industrial and manufacturing engineering; mechanical engineering; and materials engineering.

Webinar and Events

Event: S-STEM 2018 Webinars

When: January 29, 2018 from 1.00 PM to 3.00 PM

February 6, 2018 from 3.00 PM to 5.00 PM

February 12, 2018 from 12.00 PM to 2.00 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=244322&org=NSF

Brief Description: Submissions to the NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) Program are due by 5:00 p.m. local time Wednesday, 28 March 2018 in response to NSF solicitation 17-527. To answer any questions you may have about your potential submission, NSF S-STEM Program Directors will host a series of webinars in January and February. Please note that the webinars will be given in two styles: traditional and flipped. The first half-hour of a traditional webinar will consist of an overview of the program itself; this will be followed by a question-and-answer session. The entirety of a flipped webinar will be devoted to questions--the hosts of a flipped webinar will not give an overview of the program. To prepare for the flipped webinar, participants will be expected to have carefully read the solicitation ([click here](#)) and/or viewed the videos (bottom of this page) which will soon be updated with current versions. Additional information is available on the [NSF S-STEM program page](#).

Information about the FY2018 S-STEM webinars for prospective investigators is below:

1. Webinar 1

When: 1:00 p.m. to 3:00 p.m. ET Monday, 29 January

URL: <http://bit.ly/2E1DlwX>. Meeting number (access code): 740 359 517. Meeting password: ZxsfMV@7

Hosts: Mark Pauley (computer science; mpauley@nsf.gov) and Pushpa Ramakrishna (biology; pusramak@nsf.gov)

Style: Flipped

2. Webinar 2

When: 3:00 p.m. to 5:00 p.m. ET Tuesday, 6 February

URL: <http://bit.ly/2rAmxKS>. Meeting number (access code): 745 404 200. Meeting password: vMt7aGF\$

Host: Tom Kim (chemistry, tkim@nsf.gov)

Style: Traditional

3. Webinar 3

When: noon to 2:00 p.m. ET Thursday, 15 February

URL: <http://bit.ly/2E45aVo> Meeting number (access code): 742 904 512. Meeting password: uVCjCm?2

Host: Ron Buckmire (mathematics, rbuckmir@nsf.gov)

Style: Traditional

NSF uses the conferencing program WebEx for webinars. To join a meeting, follow the associated link or URL. If you haven't used WebEx before, a small piece of software will be downloaded to your machine via your web browser. Once you join, make sure that "Call Using Computer" is displayed and then click on the big button to connect your audio. Video isn't required--to turn yours on, click the toggle.

To Join the webinar: Register at the above URL

Event: Mathematical Sciences Research Institutes

Sponsor: NSF

When: February 20, 2018 from 2.00 PM to 3.30 PM

Website: https://www.nsf.gov/events/event_summ.jsp?cntn_id=244064&org=NSF

Brief Description: This webinar will cover the [program solicitation \(NSF 17-553\)](#) and requirements for submission of proposals to the *Mathematical Sciences Research Institutes* program. There will be a question-and-answer session following the discussion.

Mathematical Sciences Research Institutes are national resources that aim to advance research in the mathematical sciences through programs supporting discovery and dissemination of knowledge in mathematics and statistics and enhancing connections to related fields in which the mathematical sciences can play important roles. Institute activities help focus the attention of some of the best mathematical minds on problems of particular importance and timeliness. Institutes are also community resources that involve a broad segment of U.S.-based mathematical sciences researchers in their activities. The goals of the Mathematical Sciences Research Institutes program include advancing research in the mathematical sciences, increasing the impact of the mathematical sciences in other disciplines, and expanding the talent base engaged in mathematical research in the United States.

The NSF Division of Mathematical Sciences invites proposals for projects that contribute to this important, influential activity.

- Webinar: February 20, 2018
- Letters of Intent due: December 14, 2018
- Proposals due: March 14, 2019

To join the webinar: Please register at

<https://nsf.webex.com/nsf/j.php?RGID=rfc62542ea791967e36b6bcd7991d9318>

by February 16, 2018.

Grant Opportunities

National Science Foundation

Grant Program: Integrative Strategies for Understanding Neural and Cognitive Systems

Agency: National Science Foundation NSF 18-533

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18533/nsf18533.htm>

Brief Description: The complexities of brain and behavior pose fundamental questions in many areas of science and engineering, drawing intense interest across a broad spectrum of disciplinary perspectives while eluding explanation by any one of them. Rapid advances within and across disciplines are leading to an increasingly interwoven fabric of theories, models, empirical methods and findings, and educational approaches, opening new opportunities to understand complex aspects of neural and cognitive systems through integrative multidisciplinary approaches.

This program calls for innovative, convergent, boundary-crossing proposals that can best capture those opportunities and map out new research frontiers. NSF seeks proposals that are bold and risky, and transcend the perspectives and approaches typical of disciplinary research efforts. This cross-directorate program is one element of NSF's broader effort directed at Understanding the Brain, a multi-year activity that includes NSF's participation in the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative (<https://www.nsf.gov/brain/>). NSF envisions a connected portfolio of transformative, integrative projects that create synergistic links across investigators and communities, yielding novel ways of tackling the challenges of understanding the brain in action and in context.

This solicitation extends the NCS program for three years, from FY2018 through FY2020, and offers the FRONTIERS proposal class, for larger projects, in FY2019. Integrative projects will be supported at scales reflecting increasing levels of collaboration and coordination toward strategic, potentially transformative research goals.

The program focuses on four aspects of neural and cognitive systems that are current targets of converging interdisciplinary interests. NCS projects must advance the foundations of one or more of these focus areas, as described further within the solicitation:

1. ***Neuroengineering and Brain-Inspired Concepts and Designs***
2. ***Individuality and Variation***
3. ***Cognitive and Neural Processes in Realistic, Complex Environments***
4. ***Data-Intensive Neuroscience and Cognitive Science***

Proposals must address both risk and reward: **high-risk, high-payoff approaches are expected**. Proposals must also be consistent with the missions of the participating directorates, while going beyond the scope of any NSF core program, or they will not be considered responsive to the solicitation.

Awards: Standard grants; **Anticipated Funding Amount:** \$15,000,000

Letter of Intent Due Date(s) (required) (due by 5 p.m. submitter's local time):

February 20, 2018

FOUNDATIONS, FY2018 competition

December 07, 2018

FRONTIERS, FY2019 competition

Full Proposal Submission Deadline: April 17, 2018

Contacts: NCS Program Team, telephone: (703) 292-2485, email: ncs@nsf.gov

Grant Program: Cultivating Cultures for Ethical STEM

Agency: National Science Foundation NSF 18-532

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18532/nsf18532.htm>

Brief Description: Cultivating Cultures for Ethical STEM (CCE STEM) funds research projects that identify (1) factors that are effective in the formation of ethical STEM researchers and (2) approaches to developing those factors in all the fields of science and engineering that NSF supports. CCE STEM solicits proposals for research that explores the following: 'What constitutes responsible conduct for research (RCR), and which cultural and institutional contexts promote ethical STEM research and practice and why?' Factors one might consider include: honor codes, professional ethics codes and licensing requirements, an ethic of service and/or service learning, life-long learning requirements, curricula or memberships in organizations (e.g. Engineers without Borders) that stress responsible conduct for research, institutions that serve under-represented groups, institutions where academic and research integrity are cultivated at multiple levels, institutions that cultivate ethics across the curriculum, or programs that promote group

work, or do not grade. Do certain labs have a 'culture of academic integrity'? What practices contribute to the establishment and maintenance of ethical cultures and how can these practices be transferred, extended to, and integrated into other research and learning settings?

Successful proposals typically have a comparative dimension, either between or within institutional settings that differ along these or among other factors, and they specify plans for developing interventions that promote the effectiveness of identified factors.

CCE STEM research projects will use basic research to produce knowledge about what constitutes or promotes responsible or irresponsible conduct of research, and how to best instill students with this knowledge. In some cases, projects will include the development of interventions to ensure responsible research conduct.

Awards: Standard grants; **Anticipated Funding Amount:** \$3,150,000

Letter of Intent: Not Required;

Limit on Number of Proposals per Organization: 1

Only one proposal may be submitted by an eligible organization, as defined above, in which a member of their organization serves as the PI. Potential PIs are advised to contact their institutional office of research regarding processes used to select proposals for submission. Organizations submitting more than one proposal will be notified and given one week from notification to select one proposal for consideration. If one is not selected in that time period, all of those proposals will be returned without review. There is no limit on the number of proposals under which an organization may be included as a non-lead collaborator or sub-awardee.

Full Proposal Submission Deadline: April 17, 2018

Contacts: Frederick M. Kronz (SBE), telephone: (703) 292-7283, email: fkronz@nsf.gov

- Cassandra M. Dudka (OISE), telephone: (703) 292-7250, email: cdudka@nsf.gov
- Robert D. Fleischmann (BIO), telephone: (703) 292-7191, email: rfleisch@nsf.gov

Grant Program: Cyberinfrastructure for Sustained Scientific Innovation (CSSI) - Data and Software

Agency: National Science Foundation NSF 18-531

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18531/nsf18531.htm>

Brief Description: The Cyberinfrastructure for Sustained Scientific Innovation (CSSI) umbrella program encompasses the long-running Data Infrastructure Building Blocks (DIBBs) and Software Infrastructure for Sustained Innovation (SI2) programs, as NSF seeks to enable funding opportunities that are flexible and responsive to the evolving and emerging needs in data and software cyberinfrastructure.

The CSSI umbrella program anticipates four classes of awards:

1. **Elements** (either *Data Elements* or *Software Elements*): These awards target small groups that will create and deploy robust capabilities for which there is a demonstrated need that will advance one or more significant areas of science and engineering.
2. **Framework Implementations** (either *Data Frameworks* or *Software Frameworks*): These awards target larger, interdisciplinary teams organized around the development and application of common infrastructure aimed at solving common research problems faced by NSF researchers in one or more areas of science and engineering, resulting in a sustainable community framework serving a diverse community or communities.
3. **Planning Grants for Community Cyberinfrastructure** (either *Community Data Cyberinfrastructure Planning Grants* or *Community Software Cyberinfrastructure Planning Grants*): Planning awards focus on the establishment of long-term capabilities in

cyberinfrastructure, which would serve a research community of substantial size and disciplinary breadth.

4. **Community Cyberinfrastructure Implementations** (either *Community Data Cyberinfrastructure Implementations* or *Community Software Cyberinfrastructure Implementations*): These Community Software Cyberinfrastructure Implementations focus on the establishment of long-term hubs of excellence in cyberinfrastructure and technologies, which will serve a research community of substantial size and disciplinary breadth.

Awards: Standard grants; **Anticipated Funding Amount:** \$34,000,000

Letter of Intent: Not Required;

Full Proposal Submission Deadline: April 18, 2018

Contacts: Vipin Chaudhary, Program Director, CISE/OAC, telephone: (703) 292-2254, email: CSSIQueries@nsf.gov

- Amy Walton, Program Director, CISE/OAC, telephone: (703) 292-4538, email: CSSIQueries@nsf.gov
- Rajiv Ramnath, Program Director, CISE/OAC, telephone: (703) 292-4776, email: CSSIQueries@nsf.gov

Grant Program: Antarctic Research

Agency: National Science Foundation NSF 18-530

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18530/nsf18530.htm>

Brief Description: The U.S. Antarctic Program (USAP) supports scientific research in Antarctica and the Southern Ocean, and NSF's Office of Polar Programs (OPP) provides operational research support for these projects. OPP's Antarctic Sciences Section (ANT) supports research to 1) expand fundamental knowledge of the Antarctic region, 2) improve understanding of interactions between the Antarctic region and global Earth systems, and 3) utilize unique characteristics of the Antarctic continent as an observing platform. Antarctic fieldwork is supported for research that can only be performed, or is best performed, in Antarctica. ANT encourages research, using existing samples, data, and models, that does not require fieldwork. ANT also encourages research that crosses and combines, disciplinary perspectives and approaches.

Awards: Standard grants; **Anticipated Funding Amount:** \$55,000,000

Letter of Intent: Not Required;

Full Proposal Submission Deadline: Proposals Accepted Anytime

Contacts: Jennifer Burns, Program Director, Antarctic Integrated System Science, W7178, telephone: (703) 292-2120, email: jmmburns@nsf.gov

- Jessie L. Crain, Antarctic Research Support Manager, W7126, telephone: (703) 292-7457, email: jlcrain@nsf.gov
- Paul M. Cutler, Program Director, Antarctic Glaciology, W7217, telephone: (703) 292-4961, fax: (703) 292-9025, email: pcutler@nsf.gov

Grant Program: Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)

Agency: National Science Foundation NSF 18-529

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18529/nsf18529.htm>

Brief Description: NSF INCLUDES (Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science) is a comprehensive national initiative designed to enhance U.S. leadership in science, technology, engineering, and mathematics (STEM) discoveries and innovations by focusing on broadening participation in these fields at scale. The vision of NSF INCLUDES is to catalyze the STEM enterprise to collaboratively work for inclusive change, which will result in a STEM workforce that reflects the population of the Nation. The initiative is developing a National Network composed of NSF INCLUDES Design and Development Launch Pilots, NSF INCLUDES Alliances, an NSF INCLUDES Coordination Hub, NSF-funded broadening participation projects, other relevant NSF-funded projects, scholars engaged in broadening participation research, and other organizations that support the development of talent from all sectors of society to build an inclusive STEM workforce. The successful implementation of NSF INCLUDES will result in substantial advances toward a diverse, innovative, and well-prepared STEM workforce to support our Nation's economy and continued U.S. leadership in the global STEM enterprise. It is anticipated that NSF's investment will contribute to new and improved STEM career pathways, policies, opportunities to learn, and practices for equity and inclusion. The initiative will be supported by the NSF INCLUDES Coordination Hub ([NSF 17-591](#)) that will provide a framework for communication and networking, network assistance and reinforcement, and visibility and expansion for the NSF INCLUDES National Network as a whole.

This solicitation offers opportunities for NSF INCLUDES Alliances. The critical functions of each NSF INCLUDES Alliance are to:

1. Develop a vision and strategy (e.g., problem statement and theory of change) for broadening participation in STEM along with relevant metrics of success and key milestones/goals to be achieved during the project's lifecycle;
2. Contribute to the knowledge base on broadening participation in STEM through broadening participation and implementation research, sharing project evaluations, data, new scientific findings/discoveries, and promising practices;
3. Develop multi-stakeholder partnerships and build infrastructure among them to decrease social distance and achieve progress on common goals targeted by the Alliance;
4. Establish a "backbone" or support organization that provides a framework for communication and networking, network assistance and reinforcement, visibility and expansion of the Alliance and its partners, that will collaborate with the NSF INCLUDES Coordination Hub;
5. Advance a logic model or other heuristic that identifies Alliance outcomes that reflect implementation of change at scale and progress toward developing an inclusive STEM enterprise.

Collectively, the set of NSF INCLUDES Alliances are to:

1. 1) Participate in a network of peer alliances to achieve long-term goals of the NSF INCLUDES program;
2. 2) Collaborate with the NSF INCLUDES Coordination Hub to build critical knowledge that shows measurable progress toward long-term goals; and
3. 3) Work to build on-ramps for other organizations and broadening participation stakeholders to join in and expand the NSF National Network.

All NSF INCLUDES Alliance proposals should describe the results they expect to achieve in broadening participation in STEM. Each proposal must explain how they will build the infrastructure to foster collaboration and achieve impact by emphasizing the following five characteristics of the NSF INCLUDES Program: a) Vision, b) Partnerships, c) Goals and Metrics, d) Leadership and Communication, and e) the Potential for Expansion, Sustainability and Scale.

Limit on Number of Proposals per Organization: An organization may serve as the lead institution on only one Alliance proposal. Organizations that serve as the lead institution on an Alliance proposal may still participate in other Alliance proposals as a collaborating institution. In the event that an organization exceeds the limit of one proposal as lead, proposals received within the limit will be accepted based on earliest date and time of proposal submission. No exceptions will be made.

Internal Competition: Please submit a pre-proposal for internal competition to your college dean(s) by **February 1**. College deans are requested to forward the proposals with their reviews and recommendations by **February 7**. After the institutional review, the selected pre-proposal will be announced by **February 15**. The pre-proposal should be up to 5 pages excluding cover page, budget with justification and NSF format biographical sketches of PI and Ci-PIs in the following format (please follow the guidelines in the above RFP):

8. **Cover Page** with title and information of key investigators of the alliance
9. **Summary** of the proposal with Intellectual Merit and Broader Impact
10. **Vision:** Every NSF INCLUDES Alliance proposal should describe the vision of what the Alliance aspires to achieve. What will be different in the landscape of broadening participation in STEM as a result of the efforts of this Alliance?
11. **Partnerships:** Partnerships and networks are at the heart of the NSF INCLUDES National Network, and Alliance proposals should include a plan for creating a platform for partnerships and collaborative action that includes a "backbone" or support organization. How will the Alliance partners engage an expansive community in a shared vision of the importance and power of broadening participation for scientific innovation? Why is the partnership that is being developed the right partnership to achieve the vision?
12. **Goals and Metrics:** Alliance proposals should delineate how the partnerships and networks will develop and be driven by shared goals, available evidence from research that forms the basis for the plans, and the metrics and milestones that define the pathway to achieving the vision. Robust data collection plans and implementation research will need to be included, to facilitate evidence-based decision making and adjustments as the Alliance matures.
13. **Leadership and Communication:** Alliance proposals should provide details for how the Alliance will build and strengthen capacity for leadership and communication among collaborating organizations and individuals to create opportunities and enact inclusion in STEM.
14. **Expansion, Sustainability and Scale:** Finally, Alliance proposals should discuss how the collaborative infrastructure building process will ultimately lead to: expansion (more partners joining the movement), sustainability (more long-term connections being made), and implementation of change at scale (a likelihood for collaborative change to lead to change on a broad scale).

Awards: Standard Grants; **Anticipated Funding Amount:** \$8,500,000

Letter of Intent: Not Required

Submission Deadline: April 04, 2018

Contacts: General inquiries may be addressed to:, telephone: (703)292-7303, email: nsfincludes@nsf.gov

Grant Program: Expeditions in Computing

Agency: National Science Foundation NSF 18-528

RFP Website: <https://www.nsf.gov/pubs/2018/nsf18528/nsf18528.htm>

Brief Description: The far-reaching impact and rate of innovation in the computer and information science and engineering fields has been remarkable, generating economic prosperity and enhancing the quality of life for people throughout the world.

The Directorate for Computer and Information Science and Engineering (CISE) has established the *Expeditions in Computing (Expeditions)* program to provide the CISE research and education community with the opportunity to pursue ambitious, fundamental research agendas that promise to define the future of computing and information.

In planning **Expeditions projects**, investigators are encouraged to come together within or across departments or institutions to combine their creative talents in the identification of compelling, transformative research agendas that promise disruptive innovations in computer and information science and engineering for many years to come.

Funded at levels up to \$2,000,000 per year for five years, *Expeditions* projects represent some of the largest single investments currently made by the CISE directorate. Together with the Science and Technology Centers that CISE supports, *Expeditions* projects form the centerpiece of the directorate's center-scale award portfolio. With awards funded at levels that promote the formation of large research teams, CISE recognizes that concurrent research advances in multiple fields or sub-fields are often necessary to stimulate deep and enduring outcomes. The awards made in this program will complement research areas supported by other CISE programs, which target particular computer and information science and engineering fields.

Additionally, CISE offers **Innovation Transition (InTrans) awards** for teams nearing the end of their *Expeditions* as well as Secure and Trustworthy Cyberspace (SaTC) and Cyber-Physical Systems (CPS) Frontier projects. The goal of *InTrans* is to continue the long-term vision and objectives of CISE's center-scale projects. Through In Trans awards, CISE will provide limited funds to match industry support.

Awards: Up to \$30,000,000 total for each competition, subject to the availability of funds. *Expeditions* projects with annual budgets up to \$2,000,000 for durations of five years

Letter of Intent: Not Required

Preliminary Proposal Required: Deadline: April 25, 2018

Full Proposal Submission Deadline: January 16, 2019

Contacts: Mitra Basu, Program Director, telephone: (703) 292-8910, email: mbasu@nsf.gov

National Institutes of Health

Grant Program: Cutting-Edge Basic Research Awards (CEBRA) (R21-Clinical Trial Optional)

Agency: National Institutes of Health PAR-18-437

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-18-437.html>

Brief Description: Pharmacological, neurobiological, behavioral, cell biological and genetic research has provided insight into how addictive drugs exert their actions on the brain and other organs. Neurobiological, behavioral and cognitive studies have shown how addictive drugs affect behavior and information processing in the brain, and have helped to elucidate the normal behavioral and neurobiological processes that are "hijacked" by addictive substances. They have also helped us understand motivational aspects of SUDs and other relevant behaviors, emotional regulation, and decision-making processes.

Basic science discoveries have consistently been the basis for many major advances in both clinical and applied SUD research and have contributed to the development and implementation of successful treatment strategies for SUDs and pain. Basic research has also led to the discovery of new targets for medications, non-addictive treatments for pain, the development of new

technologies that enhance prevention and treatment programs for SUDs, and new approaches for statistical analysis of epidemiological and clinical trials data. Basic research to establish new animal models and new methods to synthesize small molecules and immunotherapies has supported the development of new medications to treat SUDs. Basic research has also addressed how addictive substances interact with viral infections such as HIV, HBV, and HCV. In addition, new technologies and approaches, such as nanobiology, bioengineering, epigenomics, computational science, imaging methods and optogenetics have had a significant impact on cutting-edge research. However, there is still a need to increase our understanding of SUDs and related disorders through basic research in all these areas in order to develop effective diagnostic, treatment and prevention interventions to alleviate the pain and devastation of addiction.

The goal of NIDA's CEBRA program is to accelerate the pace of discoveries to advance addiction research by encouraging scientifically sound applications that focus on innovation. The CEBRA encourages researchers to explore new approaches, test imaginative new ideas, and challenge existing paradigms in drug addiction research. We encourage the development of new mathematical and/or statistical models, advances that incorporate innovative cell biology studies, as well as testing new methods and hypotheses in humans and a variety of animal models. The CEBRA program will support high-risk, high impact research that: (1) tests an innovate and significant hypothesis for which there are scant precedent or preliminary data and which, if confirmed, would transform current thinking; or (2) develops, and/or adapts, revolutionary techniques or methods for addiction research or that show promising future applicability to SUD research.

Awards: The combined budget for direct costs for the two year project period may not exceed \$275,000. No more than \$150,000 in direct costs may be requested in any single year.

Letter of Intent: 30 days prior to the application due date

Deadline: August 20, 2018; December 20, 2018; August 20, 2019; December 20, 2019; August 20, 2020; and December 18, 2020, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: Lab to Marketplace: Tools for Brain and Behavioral Research (R43/R44 - Clinical Trial Optional)

Agency: National Institutes of Health PAR-18-565

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-18-565.html>

Brief Description: The NIH and other research sponsors invest a significant amount of funds in the development of new technologies to study the brain and behavior, from basic and clinical perspectives, through a variety of mechanisms, including, from NIH, the R01, R21, R33, P01, P41, and P50 grants. This investment has produced a large number of technologies that include hardware (e.g., instruments, devices, etc.), software (e.g., computational models, informatics tools, data analytic methods, etc.) and wetware (e.g., cell-free assays, bioactive agents, imaging probes, etc.). While these technologies are put to good use by their developers, such non-commercial developers devote little attention to making their tools robust and easy to use by the broad research community. Consequently, the promise of these advanced technologies is often realized only by the tools' developers and their close associates. Moreover, ongoing support to maintain and update technologies in non-commercial settings is difficult to obtain.

In contrast, tools that are commercially available need to be sturdy and easy to use, and commercial success often provides the means for continued maintenance and improvements of

the underlying technology. This funding opportunity announcement (FOA) is intended to help move useful technologies from non-commercial laboratories into the commercial marketplace by encouraging SBIR grant applications from small businesses for further development of such technologies that are relevant to the missions of the sponsoring NIH Institutes and Centers. The supported research and development will likely include making the tools more robust and easy to use, and will likely require close collaboration between the original developers of these technologies and SBCs. These partnerships may be accomplished in any of a number of ways, including the use of multiple program directors/principle investigators.

Awards: Budgets of up to total \$450,000 per year total cost for Phase I awards and \$750,000 per year total cost for Phase II awards, and \$1,000,000 per year total cost for Phase IIB may be requested

Letter of Intent: 30 days prior to the application due date

Deadline: [Standard dates](#) apply, by 5:00 PM local time of applicant organization.

*** Note new SBIR/STTR Standard Due Dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date

Grant Program: Innovation Corps (I-Corps™) at NIH Program for NIH and CDC Translational Research (Admin Supp - Clinical Trial Not Allowed)

Agency: National Institutes of Health PA-18-517

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PA-18-517.html>

Brief Description: The goal of the I-Corps™ Program is to accelerate the translation of biomedical research to the marketplace by providing training to SBIR and STTR grantees in the areas of innovation and entrepreneurship. Under this program, the NIH and CDC foster the development of early-stage biomedical technologies, focus on teaching researchers how to gain a clearer understanding of the value of their inventions in the marketplace, and ultimately how to advance their technologies from the research lab into the commercial world. This program is designed to complement activities within the scope of the parent SBIR Phase I (R43) or STTR Phase I (R41) grant or the Phase I portion of an SBIR/STTR Fast-Track grant (R44/R42, respectively), to help accelerate the commercialization of new products and services derived from NIH- and CDC-funded technical feasibility studies.

Through this program, I-Corps™ teams will participate in an entrepreneurial immersion course. The I-Corps™ curriculum uses a hypothesis-driven method of customer discovery in order to gain insights into the issues associated with technology commercialization. As part of this program, participants are required to get "out of the lab" and gather information by conducting a large number of interviews (i.e., 100+) with potential customers, strategic partners, and other third-party stakeholders. During the course, I-Corps™ teams share what they learn with instructors and other teams, gaining new insights into the prospective impact of the technology being developed under the SBIR or STTR grant. It is anticipated that the feedback and learning gained during the I-Corps™ program will help inform future Phase II SBIR/STTR projects and commercialization strategies.

The I-Corps™ program will be supported through administrative supplement awards to active NIH or CDC SBIR and STTR Phase I grantees. Administrative supplement awards are intended only to support travel and other costs associated with the training program. A cohort (up to 24 teams per cohort) will be selected to participate in the I-Corps™ at NIH program, which is expected to last approximately eight weeks. **The NIH anticipates that applicants receiving**

administrative supplements under this FOA will be enrolled in the I-Corps™ at NIH Program in the first of two cohorts in 2018. Only one cohort is invited through this FOA.

Awards: NIH/CDC intends to commit up to \$1,200,000 in FY 2018 to fund up to 24 awards.

Application budgets are limited to no more than \$50,000 in total direct costs, and must reflect the actual needs of the proposed project. Note in Section IV.2 that proposed budgets should also include \$20,000 per team to cover workshop registration fees (\$20,000 out of the total budget allowed of \$50,000).

Letter of Intent: Not Required

Deadline: March 5, 2018, by 5:00 PM local time of applicant organization.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Application Due Date	March 5, 2018
Phone Interview	April 9, 2018 (estimated)
Notice of Award	April 30, 2018 (estimated)
Kick-off/Close-out Venue	TBD
Course Kick-off	June 18-21, 2018 (Monday-Thursday)
Web-Ex Courses	Wednesdays, 1-5PM ET Jun 27 Jul 11 Jul 18 Jul 25 Aug 1 Aug 8
Course Close-out/ Lessons-Learned	August 13-14, 2018 (Monday-Tuesday)
Cohort Size	24 teams

Grant Program: Understanding and Modifying Temporal Dynamics of Coordinated Neural Activity (R21 Clinical Trial Optional)

Agency: National Institutes of Health PAR-18-55

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-18-554.html>

Brief Description: Cognition appears to emerge at the level of populations of neurons, with information represented and organized as action potentials and network events that are temporally coordinated across brain areas. For example, there have been notable advances in our basic understanding of the role of local field potential (LFP) oscillations and large-scale coordination of neural networks in learning and memory. In rodents, particular patterns of temporal dynamics have been shown to proportionally improve or worsen working memory, and particular LFP oscillatory bands predict episodic/relational learning. Theta phase precession is another well-known precise temporal code that might be required for optimal cognition, and the precise reactivation of neural activity during hippocampal sharp wave ripples is also a temporally

coordinated representation that might be necessary for memory consolidation or decision making.

Applications must address at least one, and ideally more, of the following topic areas:

Topic 1: Temporal dynamics of neural patterns that impact cognition, affect, or social behavior

In animals or humans, determine which aspects of temporal coordination of systems-level neural activity affect particular domains of function such as working memory, long-term memory, relational/spatial processing, attention, cognitive control, decision making, affect regulation, or social cognition. Projects should manipulate specific aspects of the electrophysiological patterns (e.g., the power of oscillatory frequencies during particular task periods, or the degree of phase-amplitude coupling of particular frequency pairs) to determine what parameters, if manipulated appropriately, might yield the most robust and reliable improvements in behavior.

Topic 2: Understanding how molecular aberrations lead to systems-level discoordination

In animals or humans, understand how particular abnormalities at the cellular or molecular level, such as glutamate or GABA receptor dysfunction, affect the coordination of electrophysiological patterns during cognitive, affective, or social processing. Single-gene disorders in particular, such as Fragile X or Rett syndromes, might be a good opportunity to study such mechanistic questions in the context of systems level dynamics, but the case can also be made for neuropsychiatric disorders of more heterogeneous etiology.

Topic 3: Animal-to-human translation

Determine whether the changes in neural coordination patterns that improve cognition in animals predict analogous electrophysiological and cognitive improvements in normal humans and/or clinical populations. A key goal is to understand the translational value of systems electrophysiology in pre-clinical models, to know whether an electrophysiological pattern identified in a relevant model system is predictive of a similarly aberrant pattern in patients, and whether the effects of any interventions in animals are predictive of their effects in humans.

Topic 4: Computational modeling

Develop a biologically realistic computational model to allow a principled understanding of the algorithms and mechanisms by which neural coordination patterns across brain areas affect cognitive, affective, and social processing. The computational models can cross levels, such as from the biophysical level to systems-level emergent properties, and they can also be top-down, such as mathematically describing and manipulating higher-order parameters of oscillatory coordination in relation to information processing and behavioral output. Projects that address the topic of computational modeling should also include work in animals or in humans, provide testable predictions, and be closely informed by the results.

Awards: The combined budget for direct costs for the two-year project period may not exceed \$275,000. No more than \$200,000 may be requested in any single year.

Letter of Intent: Not Required

Deadline: [Standard dates](#) apply, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: NEI Collaborative Clinical Vision Research Project: Coordinating Center Grant (UG1- Clinical Trial Required)

Agency: National Institutes of Health PAR-18-521

RFP Website: <https://grants.nih.gov/grants/guide/pa-files/PAR-18-521.html>

Brief Description: The scope of this FOA is to encourage grant applications for investigator-initiated clinical trials to establish the efficacy or compare the effectiveness of screening, diagnostic, preventative or therapeutic interventions.

Separate applications may be submitted for Chair's or Resource Centers under the following respective UG1 companion FOAs:

- [PAR-18-523](#) NEI Collaborative Clinical Vision Research Project: Chair's Grant (the Chair's Grant provides the clinical, scientific, and technical leadership to the study)
- [PAR-18-522](#) NEI Collaborative Clinical Vision Research Project: Resource Center Grant. (The Resource Center provides the expertise and infrastructure for imaging, laboratory, or other requisite services)

The NEI will accept under this FOA vision-related ancillary studies to parent clinical trials supported by the NIH. Renewal applications that request additional years or funds to complete the original aims of a clinical trial will be accepted under this FOA. Renewal applications may also be submitted to request support to extend follow-up of clinical trial cohorts after completion of the primary study goals to gather information on longer-term outcomes. As applicable, this FOA may support laboratory work attending: study product manufacture, repackaging and distribution; quality assurance (i.e. identity, potency, or other aspects of product integrity); and participant safety.

Applications involving a clinical experiment that are not directly intended to evaluate a screening, diagnostic, preventative or therapeutic intervention, or compare the effectiveness of established interventions, are not suitable for this FOA. Applications that are not complex or of high resource- or safety-risk are not suitable for this FOA. Preclinical, developmental, or preparatory studies for gene transfer and stem cell therapy are not supported under this FOA.

Applicants are strongly encouraged to contact Scientific/Research staff as plans for an application are being developed (see Section VII, Agency Contacts), and no later than 12 weeks prior to the anticipated application submission date.

Awards: Application budgets are not limited but need to reflect the actual needs of the proposed project.

Letter of Intent: Not Required

Deadline: [Standard dates](#) apply, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: BRAIN Initiative: Biology and Biophysics of Neural Stimulation (R01 Clinical Trial Optional)

Agency: National Institutes of Health RFA-NS-18-018

RFP Website: <https://grants.nih.gov/grants/guide/rfa-files/RFA-NS-18-018.html>

Brief Description: This FOA is related to the recommendations in sections III.4 of the BRAIN 2025 report "New and improved perturbation technologies suitable for controlling cells that have been specified by type, wiring, location, and other characteristics (see Section III.2). Perturbation technologies in this context could include tools for stimulation, inhibition, or modulation that mimic natural activity, and could span optical, ultrasonic, chemical, electromagnetic, biochemical, and other modalities for delivery of control signals." Section III.8 highlights the need to validate these technologies as an integral part of accomplishing the goals and deliverables of the BRAIN Initiative. It also acknowledges that in order to "probe the mechanics of the brain more deeply, we must develop a better understanding of the biophysical properties of modulating neurons. In the

same way that the basic electrophysiological properties of single neurons are common across brain areas and species, it is likely that many fundamental forms of neural dynamics will generalize as well." Implicit in this is the need to understand the cellular and local circuit responses to neural stimulation technologies that are used to probe and alter neural dynamics.

The current suite of BRAIN Initiative FOAs range from testing new concepts for large scale recording and modulation, developing and optimizing tools for invasive and non-invasive neuromodulation, including understanding the physiology of non-invasive stimulation at a circuit level, to pre-clinical and clinical studies of next generation recording and modulation technologies. This FOA fills the gap in understanding how these technologies affect the brain at a basic cellular or circuit level. The new recording, mapping, and stimulation tools developed within the BRAIN initiative provide an ample toolset that can now be employed to address this gap and inform the development of next generation tools.

This FOA is designed to improve understanding of the neurobiological underpinnings of existing methods and lay the foundation for the next generation technologies by developing models, systems, and procedures to guide the design of better tools for neuromodulation. Specifically, the goal is to systematically characterize, model, and validate the neurobiological, cellular, and circuit responses of neuronal and non-neuronal cells in the central nervous system (CNS) to neural stimulation.

Awards: Application budgets are not limited but need to reflect the actual needs of the proposed project.

Letter of Intent: 30 days prior to the receipt date

Deadline: February 23, 2018, June 6, 2018, October 4, 2018, February 6, 2019, June 4, 2019, October 4, 2019, February 6, 2020, June 4, 2020, and October 6, 2020, by 5:00 PM local time of applicant organization. All [types of non-AIDS applications](#) allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Department of Defense/US Army/DARPA/ONR

Grant Program: FY 2018 Office of Naval Research (ONR) Navy and Marine Corps Science, Technology, Engineering & Mathematics (STEM), Education and Workforce Program

Agency: Department of Defense N00014-18-S-F003

Website: <https://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements>

Brief Description: As the capacity of the DoN Science and Technology (S&T) workforce is interconnected with the basic research enterprise and STEM education system, ONR recognizes the need to support efforts that can jointly improve STEM student outcomes and align educational efforts with Naval S&T current and future workforce needs. This announcement explicitly encourages projects that improve the capacity of education systems and communities to create impactful STEM educational experiences for students and workers. Submissions are encouraged to consider including active learning approaches and incorporating 21st century skill development. Projects must aim to increase student and worker engagement in STEM and enhance people with needed Naval STEM capabilities. ONR encourages applications to utilize current STEM educational research for informing project design and advancing our

understanding of how and why people choose STEM careers and opportunities of naval relevance. While this announcement is relevant for any stage of the STEM educational system, funding efforts will be targeted primarily toward projects addressing the below communities or any combination of these communities: • Secondary education communities; • Post-Secondary communities; • Informal science communities; • Current naval STEM workforce communities.

Awards: Various

Proposal Deadline:

White Papers must be received between 2 April 2018 (Monday) with a deadline of 31 July 2018 (Tuesday) at 5:00 PM Eastern Time

Applications must be received no later than 28 September 2018 (Friday) at 11:59 PM ET

Contact Information: Dr. Michael Simpson Director of Education and Workforce Office of Naval Research 875 North Randolph Street Arlington VA 22203-1995 Email: onr_stem@navy.mil

Grant Program: Millimeter-Wave Digital Arrays (MIDAS)

Agency: Department of Defense DARPA HR001118S0020

Website:

https://www.fbo.gov/index?s=opportunity&mode=form&id=d8c414aaf7c707bc4f7ac896a7b68b29&tab=core&_cview=0

Brief Description: DARPA seeks innovative proposals for the development of element-level digital beamforming array technology at millimeter wave frequencies. The primary goal of the program is to develop and demonstrate a tile building block sub-array (>16 elements) that supports scaling to large arrays (100⁺-10,000+) in the 18-50 GHz band. It is expected that this will be enabling hardware for multi-function, multi-beam phased array applications and emerging massive multiple-input-multiple-output (MIMO) techniques in communication and sensing.

Awards: Various

Proposal Deadline: Mar 26, 2018 The full proposal must be submitted via the DARPA BAA website on or before 1:00 p.m., EST 26 March 2018 in order to be considered during the initial round of selections; however, proposals received after this deadline may be received and evaluated up to five months (150 days) from date of posting on FedBizOpps.

Contact Information: HR001118S0020@darpa.mil

Grant Program: Fiscal Year (FY) 2018 Funding Opportunity Announcement (FOA) for the Office of Naval Research (ONR), on behalf of the Office of the Secretary of Defense (OSD), for the Manufacturing Engineering Education Program

Agency: Department of Defense N00014-18-S-F005

Website: <https://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements>

Brief Description: The National Defense Authorization Act (NDAA) for Fiscal Year 2017 established the "Manufacturing Engineering Education Program," (MEEP) (10 U.S.C. § 2196) which authorizes the Department of Defense to support industry-relevant, manufacturing-focused, engineering training at United States institutions of higher education, industry, nonprofit institutions, and consortia of such institutions or industry. The purpose of this program is to establish new or to enhance existing programs (or collections of programs) to better position the current and next-generation manufacturing workforce to produce military systems and components that assure technological superiority for the Department of Defense (DoD).

Interested parties should focus programs on manufacturing education to support one or more distinct manufacturing technologies; e.g. manufacturing of lightweight structures, systems and materials; robotics for manufacturing; manufacturing to exploit nanotechnology; manufacturing of components and systems for power generation, storage, or distribution; manufacturing of multi-functional electronics and/or optical devices; or other manufacturing technologies of regional or industrial sector of interest. Proposed efforts should develop and enhance curricula and programs to effectively develop skills sets needed for students to operate in multidisciplinary design and manufacturing environments, including those for which manufacturing schema are informed by computational tools for modeling and simulation. Students also should be prepared to work effectively in environments where multiple engineering disciplines are engaged during design, development and manufacturing, and where the roles of manufacturers and suppliers in businesses of various sizes, from start-ups to major systems integrators, are optimized.

Awards: Under this MEEP FOA competition, ONR intends to award approximately three (3) awards for an estimated total value of \$5,400,000, subject to the availability of funds. Each individual award will be up to a maximum of \$600,000 per year for up to three (3) years. Applications for larger amounts will be considered on a case-by-case basis.

Proposal Deadline:

White Papers due: 16 February 2018 (Friday) at 3:00 PM Eastern Time Applications due: 16 May 2018 (Wednesday) at 11:59 PM Eastern Time

Contact Information: Dr. William Mullins Title: Program Officer Office of Naval Research 875 North Randolph Street Arlington VA 22203-1995 Email: william.m.mullins@navy.mil

Grant Program: C4ISR, Information Operations and Information Technology System Research

Agency: Department of Defense N66001-17-S-3601

Website: <https://www.grants.gov/web/grants/search-grants.html>

Brief Description: The Space and Naval Warfare Systems Center, Pacific (SSC Pacific) is soliciting white papers and proposals in accordance with Federal Acquisition Regulation (FAR) 6.102(d) (2), FAR 35.016 and Department of Defense Grant and Agreement Regulations (DoDGARS) 22.315(a) which provides for competitive selection of basic research, applied research, advanced technology development, and advanced component development and prototype (hereinafter referred to as research). Submissions in response to this announcement shall be for areas relating to the advancement of Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) capabilities, enabling technologies for Information Operations and Cyber Operations, and Information Technology systems. Accordingly, proposals selected for award are considered to be the result of full and open competition and fully compliant with PL 98-369, "The Competition in Contracting Act of 1984." This BAA is for procurement contracts (hereinafter referred to as contracts), grants, cooperative agreements, and other transactions. Proposed research should investigate unique and innovative approaches for defining and developing next generation integratable C4ISR capabilities and command suites.

Awards: Various

Proposal Deadline: May 14, 2018

Contact Information: David Roden Administrative Specialist Phone 619-553-2087

Grant Program: Secretary of the Air Force (SecAF) 2030 Science and Technology (S&T) Study

Agency: Department of Defense FA8652-18-S-0001

Website: <file:///Users/atamdhawan/Downloads/FA8652-18-S-0001.pdf>

Brief Description: Secretary of the Air Force Heather Wilson announced in September 2017 inception of the "S&T Strategy 2030" study. The study's objective is to update the Air Force methods for conducting research and development (R&D) to meet the projected national security challenges of 2030. Secretary Wilson appointed the Air Force Research Laboratory (AFRL) to lead this strategy development. The Air Force's goals for the study are: 1. Evaluate technical approaches and focus areas to advance the Air Force's mission through R&D; and 2. Improve Air Force processes and organizational structures to manage early stage research.

Awards: Award Ceiling: \$250,000

Proposal Deadline: February 20, 2018

Contact Information: Kris Croake Grants Officer Phone (937) 255-2230

Grant Program: Defense Enterprise Science Initiative (DESI)

Agency: Department of Defense FA9550-18-S-B001

Website: <https://www.grants.gov/web/grants/view-opportunity.html?oppld=299112>

Brief Description: The Department of Defense (DoD) Defense Enterprise Science Initiative (DESI) is a pilot program that supports use-inspired basic research performed by university-industry teams. DESI is sponsored by the Office of the Assistant Secretary of Defense for Research and Engineering (OASD/R&E), and is run in collaboration with the Air Force Research Lab (AFRL), the Air Force Office of Scientific Research (AFOSR), and the Army Research Office (ARO).

Awards: Award Ceiling: \$6,000,000

Proposal Deadline: February 28, 2018

Contact Information: Calvin Scott Grantor Phone 703-696-7308

Department of Energy

Grant Program: OPEN 2018

Agency: Department of Energy DE-FOA-0001858

Website: <https://arpa-e-foa.energy.gov/#FoaIded06b7da-00fc-49eb-9ac0-22e052e62640>

Brief Description: This FOA marks the fourth OPEN solicitation in the history of ARPA-E. The previous OPEN solicitations were conducted at the inception of the agency in 2009 and again in 2012 and 2015. OPEN 2018 therefore continues the three-year periodic cycle for ARPA-E OPEN solicitations. An OPEN solicitation provides a vitally important mechanism for the support of innovative energy R&D that complements the other primary mechanism, which is through the solicitation of research projects in focused technology programs. ARPA-E's focused programs target specific areas of technology that the agency has identified, through extensive interaction with the appropriate external stakeholders, as having significant potential impact on one or more of the Mission Areas described in Section I.A of the FOA. Awards made in response to the solicitation for focused programs support the aggressive technical targets established in that solicitation. Taken in total, ARPA-E's focused technology programs cover a significant portion of the spectrum of energy technologies and applications.

ARPA-E's OPEN FOAs ensure that the agency does not miss opportunities to support innovative energy R&D that falls outside of the topics of the focused technology programs or that

develop after focused solicitations have closed. OPEN FOAs provide the agency with a remarkable sampling of new and emerging opportunities across the complete spectrum of energy applications and allow the agency to “take the pulse” of the energy R&D community. OPEN FOAs have been and will continue to be the perfect complement to the agency’s focused technology programs – a unique combination of approaches for supporting the most innovative and current energy technology R&D. Indeed, one third of the sixty projects featured in the first two volumes describing ARPA-E impacts stem from OPEN solicitations (<https://arpa-e.energy.gov/?q=site-page/arpa-e-impact>). Potential applicants to this FOA are strongly encouraged to examine the OPEN projects in these two volumes and all of the projects supported in the previous three OPEN solicitations (<https://arpa-e.energy.gov/?q=site-page/open>) for examples of the creative and innovative R&D ARPA-E seeks in its OPEN solicitations.

Awards; Up to \$10,000,000; Available Funding: \$100,000,000

Submission Deadline: Applicants are strongly encouraged to submit their applications at least 48 hours in advance of the submission deadline.

- Concept Paper Submission Deadline: 02/02/2018 5:00 PM ET
- Full Application Submission Deadline: 3/16/2018 5:00 PM ET

Contact Information:

- ExchangeHelp@hq.doe.gov

Please contact the email address above for questions regarding ARPA-E’s online application portal, ARPA-E eXCHANGE.

- ARPA-E-CO@hq.doe.gov

Please contact the email address above for questions regarding Funding Opportunity Announcements. ARPA-E will post responses on a weekly basis to any questions that are received. ARPA-E may re-phrase questions or consolidate similar questions for administrative purposes.

NASA

Grant Program: Astrophysics Research and Analysis

Agency: NASA NNH17ZDA001N-APRA

Website:

<https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BFA4087E9-4195-3F70-F210-1B856CACD947%7D&path=open&method=init>

Brief Description: The Astrophysics Research and Analysis Program (APRA) program solicits basic research proposals for investigations that are relevant to NASA's programs in astronomy and astrophysics and includes research over the entire range of photons, gravitational waves, and particle astrophysics. Awards may be for up to four years’ duration (up to five years for suborbital investigations), but shorter-term proposals are typical; four-year or five-year proposals must be well justified. Proposals for suborbital investigations are particularly encouraged. APRA investigations may advance technologies anywhere along the full line of readiness levels, from Technology Readiness Level (TRL) 1 through TRL9. The emphasis of this program element is on technologies and investigations that advance NASA astrophysics missions and goals.

The APRA program seeks to support research that addresses the best possible (i) state-of-the-art detector technology development for instruments that may be proposed as candidate experiments for future space flight opportunities; (ii) science and/or technology investigations that can be carried out with instruments flown on suborbital sounding rockets, stratospheric balloons, or other platforms; and (iii) supporting technology, laboratory research, and/or (with

restrictions) ground-based observations that are directly applicable to space astrophysics missions. To meet these goals, proposals are solicited in the following five broad categories:

- Suborbital/Suborbital-class Investigations
- Detector Development
- Supporting Technology
- Laboratory Astrophysics
- Ground-Based Observations.

Awards: Various

Notice of Intent: January 26, 2018

Proposal Deadline: March 15, 2018

Contact: Michael R. Garcia Astrophysics Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: (202) 358-1053 Email: Michael.R.Garcia@nasa.gov

Grant Program: NASA Fellowship Activity 2018

Agency: NASA NNH18ZHA003N

Website: <https://spacegrant.carthage.edu/live/news/17617-call-for-proposals-nasa-fellowship-activity-2018>

<https://nspires.nasaprs.com/external/solicitations/summary!init.do?solId=%7b1CA633C8-7767-8658-6260-F318694A347B%7d&path=open>

Brief Description: NASA Fellowship Activity 2018 is seeking student authored and independently conceived graduate research proposals responding to a NASA Research Opportunity listed in the solicitation. The purpose of the NASA Fellowship Activity 2018 is to support the vitality and diversity of the STEM workforce of NASA and the United States by training and funding graduate students during their STEM academic endeavors and providing access to NASA, its content, unique facilities, and STEM experts. The program details and requirements are outlined in the solicitation document. To be eligible to submit a proposal, candidates must be U.S. citizens or naturalized citizens who hold a bachelor's degree in a STEM field earned before Aug. 31, 2018. Candidates must be enrolled in a master's or doctoral degree program no later than Sept. 1, 2018, and intend to pursue a research-based Masters or Ph.D. program in a NASA-relevant field.

Awards: Anticipated Funding Amount: \$1,500,000

Notice of Intent: Not Required

Proposal Deadline: March 20, 2018

Contact: <http://nspires.nasaprs.com/> (help desk available at (202) 479-9376)

National Endowment of Humanities

Grant Program: Institutes for Advanced Topics in the Digital Humanities

Agency: National Endowment of Humanities

Website: <https://www.neh.gov/grants/odh/institutes-advanced-topics-in-the-digital-humanities>

Brief Description: The Institutes for Advanced Topics in the Digital Humanities (IATDH) program supports national or regional (multistate) training programs for scholars, humanities professionals, and advanced graduate students to broaden and extend their knowledge of digital humanities. Through this program NEH seeks to increase the number of humanities scholars and practitioners using digital technology in their research and to broadly disseminate knowledge about advanced technology tools and methodologies relevant to the humanities.

The institutes may be a single opportunity or offered multiple times to different audiences. Institutes may be as short as a few days and held at multiple locations or as long as six weeks at a single site. For example, training opportunities could be offered before or after regularly occurring scholarly meetings, during the summer months, or during appropriate times of the academic year. The duration of a program should allow for full and thorough treatment of the topic.

These professional development programs may focus on a particular computational method, such as network or spatial analysis. They may also target the needs of a particular humanities discipline or audience.

Awards: Up to \$250,000

Proposal Deadline: March 13, 2018

Contact: Contact the Office of Digital Humanities (ODH) via e-mail at odh@neh.gov.

Streamlyne Update

It has been very exciting to introduce Streamlyne as the new tool for Grant Management. Streamlyne is simplifying the pre-award proposal submission processes promoting shared information technology (IT), and improving the timeliness of grant close out. Currently Streamlyne system has been customized in the following areas:

- Download the package with all forms – there are still some exceptions to this as the federal government continues to change some of the standard forms.
- Validation error prior to submission – this allows to review the package for errors
- Work Flow approval transparent to all users
- Budget forms customized to NSF and/or S2S
- Sub-award budgets easily download – this will allow better management of the award

New “How to Do” videos have been posted on the research website <http://www5.njit.edu/research/streamlyne/>. These videos show step-by-step process on the following tasks:

- ◆ [How to Begin Proposal Submission in Streamlyne](#)
- ◆ [How to Input Proposal Budget](#)
- ◆ [How to Process Approvals](#)
- ◆ [How to Upload Proposal Attachments](#)
- ◆ [How to Search for a Proposal that is in Route](#)
- ◆ [Difference Between "Prime Sponsor Code" and "Sponsor Code"](#)
- ◆ [How to Select an RR Budget, RR Sub-award or Modular Budget](#)
- ◆ [How to Add a Student/Summary](#)
- ◆ [Participant Support Categories](#)
- ◆ [Supplies Specific Category Materials](#)
- ◆ [How to Create a Modular Budget](#)

Also, the following links may be helpful:

- ◆ [Streamlyne Benefits for Proposal Submission and Grant Management](#)
- ◆ [Grants.gov Presentation on Online Proposal Submission Systems](#)
- ◆ [Streamlyne Newsletter V2017.1](#)
- ◆ [Streamlyne FAQs](#)

Faculty and staff having any questions on proposal submission, may contact their college representatives, and also follow up with **Justin Samolewicz, Associate Director (Pre Award)** 973-596-3145; justin.m.samolewicz@njit.edu; and **Eric Hetherington**, Director, Sponsored Research Programs Administration 973-596-3631; eric.d.hetherington@njit.edu. The college representatives to help PIs on proposal submissions are

John McCarthy, NCE Director of Research; (973) 596-3247; john.p.mccarthy@njit.edu

Cristo Leon, CSLA Director of Research; (973) 596-6426; cristo.e.yanezleon@njit.edu

Sean Andrews, YWCC Director of Research; (973) 596-5352; sean.t.andrews@njit.edu

Iris Pantoja, CoAD and MTSM Project Manager; 973-596-4483; irp3@njit.edu
