

# Funding Opportunities Announcement

September 2015

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NSF Division of Chemical, Bioengineering, Environmental, and Transport Systems (CBET):  
*CBET applicants are encouraged to read the [Dear Colleague Letter on Automated Compliance Checking and Proposal Submission](#), which affects Principal Investigators for the upcoming October 2015 unsolicited proposal window (NSF 15-095).*

*Program area funding announcements:*

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## OPPORTUNITY DETAILS

### **NEA: Research: Arts Work**

Deadlines:

Pacific Routing Form: October 12, 2015

Pacific Submit date: October 16, 2015

Deadline of record: Step 1: October 20, 2015, no later than 11:59 p.m., Eastern Time; submit the SF-424 form

Step 2: November 3 to November 10, 2015, no later than 11:59 p.m., Eastern Time: Upload a substantial part of your application, including narrative, bios, financial information, statements of support, and work samples to NEA-GO

The NEA's Office of Research & Analysis will make awards to support research that investigates the value and/or impact of the arts, either as individual components within the U.S. arts ecology or as they interact with each other and/or with other domains of American life.

The agency has determined that all grants awarded under this category will have the following for their primary outcome:

- **Understanding:** *Evidence of the value and/or impact of the arts is expanded and promoted.*

This includes the potential to elevate the public profile of arts-related research, in at least one of the following ways:

- Increase the variety of knowledge domains or fields of technical expertise that contribute to arts-related research.
- Heighten the relevance and significance of arts-related research to policy and practice.
- Reflect strong collaboration between arts practitioners and researchers or evaluators.

#### Research Partnerships

The NEA is committed to supporting research teams that demonstrate interdisciplinary partnerships between arts practitioners and researchers/evaluators. Although not required, **applicants are strongly encouraged to include project teams of arts practitioners and researchers/evaluators.**

Program description: <http://arts.gov/grants-organizations/research-art-works/grant-program-description>

#### **NIH: Big Data to Knowledge (BD2K) Development of Software Tools and Methods for Biomedical Big Data in Targeted Areas of High Need (U01)**

##### Deadlines:

Pacific Routing Form: September 28, 2015

Pacific Submit date: October 2, 2015

Application Due Date: October 6, 2015, by 5:00 PM local time of applicant organization

The purpose of this BD2K Funding Opportunity Announcement (FOA) is to solicit development of software tools and methods in the three topic areas of Data Privacy, Data Repurposing, and Applying Metadata, all as part of the overall BD2K initiative. While this FOA is intended to foster new development, submissions consisting of significant adaptations of existing methods and software are also invited.

##### **Background**

Biomedical research is rapidly becoming more data-intensive as investigators are generating and using increasingly large, complex, multidimensional, and diverse datasets. This era of big data in biomedical research taxes the ability of many researchers to release, locate, analyze, and interact with these data and associated software due to the lack of tools, accessibility, and training. In response to these new challenges in biomedical research, and in response to the recommendations of the Data and Informatics Working Group (DIWG) of the Advisory Committee to the NIH Director

NIH recognizes that a number of areas of high need exist within the various biomedical research communities for software that enable researchers to make better use of big data. This funding opportunity announcement solicits the development of software tools and methods in the three topic areas of Data Privacy, Data Repurposing, and Applying Metadata.

Program description: [http://grants.nih.gov/grants/guide/rfa-files/RFA-CA-15-017.html#\\_Section\\_III\\_Eligibility](http://grants.nih.gov/grants/guide/rfa-files/RFA-CA-15-017.html#_Section_III_Eligibility)

#### **NIH: Innovative Basic Research on Adducts in Cancer Risk Identification and Prevention (R21)**

##### Deadlines:

Pacific Routing Form: 5-days before Pacific Submit date

Pacific Submit date: 2-days before Application Due Date

Open Date (Earliest Submission Date): October 23, 2015

Letter of Intent Due Date(s): October 23, 2015 (not required, but encouraged)  
Application Due Date(s): November 23, 2015; July 11, 2016, November 22, 2016; July 11, 2017,  
November 21, 2017; July 11, 2018, by 5:00 PM local time of applicant  
organization.

**Funding Opportunity Purpose:** This Funding Opportunity Announcement (FOA), encourages research projects focused on adducts to cellular macromolecules as indicators of exposures to cancer risk factors relevant to human populations. The priority is on projects that will focus on adductomic approaches, i.e., address some aspects of the totality of adducts. These projects should explore the basic aspects of adducts/adductomics that may have a potential utility in cancer detection, cancer prevention, and/or assessing cancer risks. The projects should be relevant to adducts in humans and human populations but may be conducted using various model systems (e.g., cultured cells, animals, etc.). The use of human biospecimens is encouraged and expected if appropriate but not required. In well-justified cases, innovative studies using the adductomic approaches in the context of cancer etiology and/or gene-environment interaction research may also be appropriate. For projects intended for NIEHS support, the focus may be on innovative technology and method development. Program announcement: <http://grants.nih.gov/grants/guide/pa-files/PAR-15-309.html>

Companion Funding Opportunity: PAR-15-308 R01 Research Project Grant:  
<http://grants.nih.gov/grants/guide/pa-files/PAR-15-308.html>

### **NSF: Interdisciplinary Behavioral and Social Science Research (IBSS)**

#### Deadlines:

Pacific Routing Form: November 23, 2015

Pacific Submit date: November 27, 2015

Full Proposal Deadline Date: December 1, 2015 (by 5:00 PM local time of submitting organization)  
[First Tuesday in December, Annually Thereafter]

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

Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=504832&org=SBE&from=home](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504832&org=SBE&from=home)

RELATED URLS: [Dear Colleague Letter for Interdisciplinary Research Across the SBE Sciences](#)

### **NIH: Development of Minimally-Invasive Bioassays to Support Outpatient Clinical Trials of Therapeutics for Substance Use Disorders (R21)**

Deadlines:

Pacific Routing Form: December 21, 2015 [due to holiday]

Pacific Submit date: January 5, 2016

Closing date for applications: January 7, 2016

This Funding Opportunity Announcement (FOA) issued by the National Institute on Drug Abuse, National Institutes of Health, encourages Exploratory / Developmental Research Project Grant (R21) applications from institutions/ organizations that propose to develop non-invasive (including but not limited to urine, sweat or oral fluids) or minimally invasive (such as fingerstick), methods to support outpatient clinical trials of pharmacotherapies for Substance Use Disorders (SUDs). The announcement has two main aims. The first aim is to encourage the development of devices / techniques that will improve estimations of a subjects consumption of an abused drug (i.e. both quantity and frequency of consumption) during an outpatient clinical trial. Such a system would allow the objective assessment of whether a medication reduces drug abuse, even if abstinence is not achieved. Proposed solutions should be able to assess systemic drug levels and be safe, portable, affordable and simple enough for subjects to take multiple samples at home and return them to the clinic for batch analysis.

Program announcement: <http://grants.nih.gov/grants/guide/pa-files/PAR-12-238.html>

**NSF: Resource Implementations for Data Intensive Research (RIDAR)in the Social Behavioral and Economic Sciences**

Deadlines:

Pacific Routing Form: February 18, 2016

Pacific Submit date: February 25, 2016

Full proposal deadline: February 29, 2016 (due by 5 p.m. proposer's local time)

February 27, 2017 [contact [osp@pacific.edu](mailto:osp@pacific.edu) for submission schedule]

As part of NSF's Cyberinfrastructure Framework for 21<sup>st</sup> Century Science and Engineering (CIF21) activity, the Directorate for Social, Behavioral and Economic Sciences (SBE) seeks to develop user-friendly large-scale next-generation data resources and relevant analytic techniques to advance fundamental research in SBE areas of study. Successful proposals will, within the financial resources provided by the award, construct such databases and/or relevant analytic techniques and produce a finished product that will enable new types of data-intensive research. The databases or techniques should have significant impacts, either across multiple fields or within broad disciplinary areas, by enabling new types of data-intensive research in the SBE sciences.

Program announcement: <http://www.nsf.gov/pubs/2015/nsf15602/nsf15602.pdf>

**NIH: Development of Innovative Informatics Methods and Algorithms for Cancer Research and Management (R21)**

Deadlines:

Contact [osp@pacific.edu](mailto:osp@pacific.edu) at least 10 business days before your intended date to submit application

Closing date for applications: June 14, 2018

The purpose of this Funding Opportunity Announcement (FOA) is to invite exploratory/developmental research grant (R21) applications for the development of innovative methods and algorithms in biomedical computing, informatics, and data science addressing priority needs across the cancer research continuum, including cancer biology, cancer treatment and diagnosis, cancer prevention, cancer control and epidemiology, and/or cancer health disparities. As a component of the NCI's

Informatics Technology for Cancer Research (ITCR) Initiative, this FOA encourages applications focused on the development of novel computational, mathematical, and statistical algorithms and methods that can considerably improve acquisition, management, analysis, and dissemination of relevant data and/or knowledge. The central mission of ITCR is to promote research-driven informatics technology across the development lifecycle to address priority needs in cancer research. In order to be successful, the proposed informatics method or algorithm must have a clear rationale on why it is novel and how it will benefit the cancer research field. Potential applicants who are interested in more downstream tool development, from prototyping to hardening and adaptation, should consult the other companion FOAs.

Program announcement: <http://grants.nih.gov/grants/guide/pa-files/PA-15-334.html>

### **NSF: Research in the Formation of Engineers (RFE)**

#### Deadlines:

Pacific Routing Form: October 2, 2015

Pacific Submit date: October 27, 2015

Full proposal deadlines: October 29, 2015

February 17, 2016 [contact [osp@pacific.edu](mailto:osp@pacific.edu) for submission schedule]

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

According to Michel Fabre, “To form is more ontological than to instruct or educate, for one’s entire being is at stake” (trans. G. Downey). Processes of formation should be holistic and carefully attend to how knowledge and personhood interrelate in the larger context of one’s life.

Professional Formation includes, but is not limited, to:

- Introductions to the profession at any age;
- Acquisition of deep technical and professional skills, knowledge, and abilities in both formal and informal settings/domains;
- Development of outlooks, perspectives, ways of thinking, knowing, and doing;
- Development of identity as an engineer and its intersection with other identities; and
- Acculturation to the profession, its standards, and norms.

As part of this initiative, the Research in the Formation of Engineers (RFE) program welcomes proposals that consider the construction of engineering knowledge, engineering identity, and the engineering profession, as well as interventions that expand the boundaries of each of these. Ultimately RFE aims to transform the engineering formation system, and thus the impact of proposed projects on this system must be described. PIs should provide a roadmap detailing how they envision the proposed research will eventually broadly impact practice within the engineering formation system, even if these activities are not within the scope of the submitted proposal.

Program announcement: [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503584](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503584)

### **NIJ FY 16 Graduate Research Fellowship in Science, Technology, Engineering, and Mathematics**

Deadlines:

Pacific Routing Form: December 7, 2015

Pacific Submit date: December 11, 2015

Closing date for applications: December 15, 2015

The Graduate Research Fellowship in Science, Technology, Engineering, and Mathematics (GRF-STEM) provides awards to accredited academic institutions to support graduate research leading to doctoral degrees in areas that are relevant to ensuring public safety, preventing and controlling crime, and ensuring the fair and impartial administration of criminal justice in the United States. Applicant academic institutions sponsoring doctoral students are eligible to apply only if:

1. The doctoral student's degree program is in a science, technology, engineering, or mathematics (STEM) discipline; and

2. The student's proposed dissertation research has direct implications for providing solutions to problems that affect public safety, crime, and the fair and impartial administration of criminal justice in the United States.

Program announcement: <http://nij.gov/funding/Documents/solicitations/nij-2016-4320.pdf>

**NSF: Self-Monitoring and Self-Assessing Intelligent Systems Research for the CISE/IIS Robust Intelligence Core Program**

Deadlines:

Submission windows:

Medium projects - September 10, 2015 - September 16, 2015, Annually Thereafter

Large projects - September 18, 2015 - September 24, 2015, Annually Thereafter

Small projects - November 04, 2015 - November 18, 2015, Annually Thereafter

[contact [osp@pacific.edu](mailto:osp@pacific.edu) for submission schedule]

The Division of Information and Intelligent Systems (IIS) within the Directorate for Computer and Information Science and Engineering (CISE) announces its intention to support research on self-monitoring and self-assessing intelligent systems through its Robust Intelligence (RI) core program.

The Robust Intelligence core program within the IIS division welcomes proposals that advance self-monitoring, self-assessment, self-repair, and user interaction to ensure that intelligent systems behave as intended. These advances include (but are not limited to) research that specifically addresses: 1) performance uncertainty measures, 2) self-diagnosis, 3) how to ensure system behavior after deployment, 4) system self-inspection and self-repair, and 5) behavioral modification when the system is not behaving as expected.

Program announcement: <http://www.nsf.gov/pubs/2015/nsf15574/nsf15574.htm>

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

Deadlines: (due by 5 p.m. proposer's local time)

Pacific Routing Form due 5-days before Pacific submit date

Pacific Submit Date 2-days before NSF full proposal deadline

Full proposal deadlines: November 3, 2015; January 13, 2016; November 2, 2016; January 11, 2017

The Improving Undergraduate STEM Education (IUSE: EHR) program invites proposals that address immediate challenges and opportunities that are facing undergraduate STEM education, as well as those that anticipate new structures (e.g. organizational changes, new methods for certification or credentialing, course re-conception, cyberlearning, etc.) and new functions of the undergraduate learning and teaching enterprise. The IUSE: EHR program recognizes and respects the variety of discipline-specific challenges and opportunities facing STEM faculty as they strive to incorporate results from educational research into classroom practice and work with education research colleagues and social science learning scholars to advance our understanding of effective teaching and learning.

Toward these ends the program features two tracks: (1) **Engaged Student Learning** and (2) **Institutional and Community Transformation**. Two tiers of projects exist within each track: (i) *Exploration and Design* and (ii) *Development and Implementation*.

Program announcement:

[http://www.nsf.gov/pubs/2015/nsf15585/nsf15585.htm?WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click#toc](http://www.nsf.gov/pubs/2015/nsf15585/nsf15585.htm?WT.mc_id=USNSF_25&WT.mc_ev=click#toc)

### **NIH: Exploration of the Roles of Brown and Beige Adipose Tissue in Humans (R01)**

#### Deadlines:

Pacific Routing Form due: February 29, 2016

Pacific Submit Date: March 7, 2016

Closing Date for Applications: March 9, 2016

This Funding Opportunity Announcement (FOA) invites applications for Research Project Grants (R01) to investigate the biological functions of brown and beige adipose tissue in humans, other than heat production and maintenance of body temperature, and to explore their impact on human health. Specifically, it seeks to 1) identify physiologic or pathophysiologic conditions other than prolonged cold exposure under which browning of human subcutaneous or other white adipose depots occurs, or where the brown adipose tissue depot found in the neck region is expanded through browning; 2) test potential non-biopsy biomarkers of human subcutaneous beige fat and 3) explore the biological functions of human brown and beige fat.

Program announcement: <http://grants.nih.gov/grants/guide/rfa-files/RFA-DK-15-031.html>

### **Whitehall Foundation Invites LOIs for Bioscience Research Projects**

*Before approaching this funder, please contact Scott Biedermann, Corporate & Foundation Relations, 209.946.2166*

Contact [osp@pacific.edu](mailto:osp@pacific.edu) for submission schedule

	<b>Summer Session</b>	<b>Fall Session</b>	<b>Spring Session</b>
Letter of Intent deadline	January 15	April 15	October 1
Issuance of Application materials	April 1	July 1	December 15
Application deadline	June 1	September 1	February 15
Notification of Grant awards	August 15	December 1	May 15

The Whitehall Foundation assists scholarly research in the life sciences through its research grants and grants-in-aid programs. It is the foundation's policy to support dynamic areas of basic biological research that are not heavily supported by federal agencies or other foundations with a specialized

mission. The foundation emphasizes the support of young scientists at the beginning of their careers and productive senior scientists who wish to move into new fields of interest.

The Foundation is currently interested in basic research in neurobiology, defined as follows: *Invertebrate and vertebrate (excluding clinical) neurobiology, specifically investigations of neural mechanisms involved in sensory, motor, and other complex functions of the whole organism as these relate to behavior. The overall goal should be to better understand behavioral output or brain mechanisms of behavior.* The Foundation does not support research focused primarily on disease(s) unless it will also provide insights into normal functioning.

[Link to Complete RFP](#)

### **NIH: Novel and Innovative Tools to Facilitate Identification, Tracking, Manipulation, and Analysis of Glycans and their Functions (R21)**

Deadlines:

Pacific routing form due: October 6, 2015

Pacific submit date: October 13, 2015

Closing date for applications: October 15, 2015

This FOA solicits development of new, more easily accessible tools, reagents, and technologies to facilitate identification, tracking, manipulation, and analysis of glycans with their biological binding partners and determine their functions. This initiative may build on efforts that interface with existing technologies and procedures to make them easier to access and use. As applicable, efforts must consider: factors for scale-up; efforts to make instrumentation broadly accessible and cost-effective for the end-user; and compatibility of data generated with integration into existing databases.

Program announcement: <http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-15-008.html>

### **NIH: Establishing Outcome Measures for Clinical Studies of Oral and Craniofacial Diseases and Conditions (R21 and R01)**

Pacific Routing Form due 5-days before Pacific submit date

Pacific Submit Date 2-days before NSF full proposal deadline

Closing date for R01 applications: October 5, 2015

Closing date for R21 applications: October 15, 2015

The goal of this funding opportunity announcement is to support the development of well-founded outcome measures, including establishing their reliability and validity, for clinical studies of those with oral and craniofacial diseases and conditions.

Program announcements:

(R21) <http://grants.nih.gov/grants/guide/pa-files/PA-15-298.html#>

(R01) <http://grants.nih.gov/grants/guide/pa-files/PA-13-380.html>

### **NEA: Literature Fellowships: Translation Projects, FY2017**

Deadlines:

Pacific routing form due: December 1, 2015

Pacific submit date: December 6, 2015

Closing date for applications: December 8, 2015

The Arts Endowment's support of a project may begin any time between November 1, 2016, and November 1, 2017, and extend for up to two years. Through fellowships to published translators, the Arts Endowment supports projects for the translation of specific works of prose, poetry, or drama from other languages into English. We encourage translations of writers and of work that are not well represented in English translation. All proposed projects must be for creative translations of literary material into English. The work to be translated should be of interest for its literary excellence and value. Priority will be given to projects that involve work that has not previously been translated into English. Competition for fellowships is rigorous. Potential applicants should consider carefully whether their work will be competitive at the national level.

Program announcement: <http://arts.gov/grants-individuals/translation-projects>

## **NSF - Graduate Research Fellowship Program (GRFP)**

Contact [osp@pacific.edu](mailto:osp@pacific.edu) before submitting application

### **NSF 15-597**

**Application Deadline(s)** (received by 8 p.m. Eastern Standard Time):

October 26, 2015 - Geosciences; Life Sciences

October 27, 2015 - Computer and Information Science and Engineering; Engineering; Materials Research

October 29, 2015 - Psychology; Social Sciences; STEM Education and Learning

October 30, 2015 - Chemistry; Mathematical Sciences; Physics and Astronomy

### **Synopsis of Program:**

The purpose of the NSF Graduate Research Fellowship Program (GRFP) 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 science, technology, engineering, and mathematics (STEM) and in STEM education. The GRFP provides three years of support for the graduate education of individuals who have demonstrated their potential for significant research achievements in STEM and STEM education. NSF especially encourages women, members of underrepresented minority groups, persons with disabilities, and veterans to apply. NSF also encourages undergraduate seniors to apply.

**Estimated Number of Awards:** 2,000

Each Fellowship consists of three years of support during a five-year fellowship period. NSF provides a stipend of \$34,000 to the Fellow and a cost-of-education allowance of \$12,000 to the graduate degree-granting institution for each Fellow who uses the fellowship support in a fellowship year.

[Program Solicitation](#)

## **NSF CBET - Environmental Sustainability - PD 15-7643**

### Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The goal of the Environmental Sustainability program is to promote sustainable engineered systems that support human well-being and that are also compatible with sustaining natural (environmental) systems. These systems provide ecological services vital for human survival.

Contact: Bruce Hamilton

[bhamilto@nsf.gov](mailto:bhamilto@nsf.gov)

(703) 292-7066

Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=501027&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501027&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - Environmental Engineering – PD 15-1440**

Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The goal of the Environmental Engineering program is to encourage transformative research which applies scientific and engineering principles to avoid or minimize solid, liquid, and gaseous discharges, resulting from human activities on land, inland and coastal waters, and air, while promoting resource and energy conservation and recovery.

Contact: William Cooper      wjcooper@nsf.gov      (703) 292-5356

Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=501029&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501029&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - General & Age-Related Disabilities Engineering – PD 15-5342**

Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The General & Age Related Disabilities Engineering (GARDE) program supports fundamental engineering research that will lead to the development of new technologies, devices, or software that improve the quality of life of persons with disabilities. Research may be supported that is directed toward the characterization, restoration, and/or substitution of human functional ability or cognition, or to the interaction of persons with disabilities and their environment.

Contact: Alexander Leonessa      aleoness@nsf.gov      (703) 292-2678

Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=501021&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501021&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - Particulate and Multiphase Processes – PD 15-1415**

Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The goal of the Particulate and Multiphase Processes (PMP) program is to support fundamental research on physico-chemical phenomena that govern particulate and multiphase systems, including flow of suspensions, drops and bubbles, granular and granular-fluid flows, behavior of micro- and nanostructured fluids, and self-assembly/directed-assembly processes that involve particulates. The

program encourages transformative research to improve our basic understanding of particulate and multiphase processes with emphasis on research that demonstrates how particle-scale phenomena affect the behavior and dynamics of larger-scale systems.

Contact: William Olbricht      wolbrich@nsf.gov      (703) 292-2563

Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13364&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13364&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - Biotechnology and Biochemical Engineering – PD 15-1491**

#### Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The Biotechnology and Biochemical Engineering (BBE) program supports fundamental engineering research that advances the understanding of cellular and biomolecular processes in engineering biology and eventually leads to the development of enabling technology for advanced manufacturing and/or applications in support of the biopharmaceutical, biotechnology, and bioenergy industries, or with applications in health or the environment. Major areas of interest in the program include:

- Metabolic engineering and synthetic biology for biomanufacturing
- Quantitative systems biotechnology
- Tissue engineering and stem cell culture technologies
- Protein engineering & design
- Single cell dynamics and modeling
- Development of novel "omics" tools for biotechnology applications

Contact: Friedrich Srienc      fsrienc@nsf.gov      (703) 292-7029

Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=501024&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501024&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - Biomedical Engineering (BME) – PD 15-5345**

#### Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The goal of the Biomedical Engineering (BME) program is to provide opportunities to develop novel ideas into discovery-level and transformative projects that integrate engineering and life sciences in solving biomedical problems that serve humanity in the long-term. BME projects must be at the interface of engineering and life sciences, and advance both engineering and life sciences. The projects should focus on high impact transformative methods and technologies. Projects should include methods, models and enabling tools of understanding and controlling living systems; fundamental improvements in deriving information from cells, tissues, organs, and organ systems; new approaches to the design of structures and materials for eventual medical use in the long-term; and novel methods for reducing health care costs through new technologies.

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Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=501023&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501023&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - Thermal Transport Processes (TTP)**

Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The **Thermal Transport Processes (TTP)** program supports engineering research aimed at gaining a basic understanding of the thermal transport phenomena and processes that are driven by thermal gradients, and manipulation of these processes to achieve engineering goals. Of specific interest is research that explores active and passive control of the dynamics of thermal processes, and simulations and experiments that bridge and model information across multiple scales. Application areas of interest include:

- Cooling and heating of components, devices and equipment.
- Thermal transport processes in energy conversion & storage, power generation, physiologic systems, and propulsion.

Priority is given to insightful investigations of fundamental problems with clearly defined economic, environmental and societal impacts.

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Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13367&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13367&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - Energy for Sustainability - PD 15-7644**

Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The goal of the **Energy for Sustainability** program is to support fundamental engineering research that will enable innovative processes for the sustainable production of electricity and fuels. Processes for sustainable energy production must be environmentally benign, reduce greenhouse gas production, and utilize renewable resources. Current topics of interest include:

Biomass Conversion, Biofuels & Bioenergy

Photovoltaic (PV) Solar Energy

Advanced Batteries for Transportation and Renewable Energy Storage

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Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=501026&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501026&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - Chemical and Biological Separations - PD 15-1417**

Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The goal of the **Chemical and Biological Separations (CBS)** program is to generate novel methods and materials for separation processes. These processes are central to the chemical, biochemical, materials, energy, and pharmaceutical industries. A fundamental understanding of the interfacial, transport, and thermodynamic behavior of multiphase chemical systems as well as quantitative descriptions of processing characteristics in the process-oriented industries is critical for efficient resource management and effective environmental protection. The program encourages proposals that address emerging research areas and technologies, have a high degree of interdisciplinary work coupled with the generation of fundamental knowledge, and the integration of education and research.

Research topics of particular interest include fundamental molecular-level work on:

- Nanostructured materials for separations
- Biorenewable resource separation processes
- Purification of drinking water
- Field (flow, magnetic, electrical) induced separations
- Separation of molecular constituents from blood

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Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13363&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13363&WT.mc_id=USNSF_25&WT.mc_ev=click)

**NSF CBET - Catalysis and Biocatalysis - PD 15-1401**

Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The goal of the **Catalysis and Biocatalysis** program is to advance research in catalytic engineering science and promote the development of catalytic materials and reactions that are of benefit to society. Research in this program should focus on new basic understanding of catalytic materials and reactions, utilizing synthetic, theoretical, and experimental approaches. Target applications include fuels, specialty and bulk chemicals, environmental catalysis, biomass conversion to fuels and chemicals, conversion of greenhouse gases, and generation of solar hydrogen, as well as efficient routes to energy utilization.

Heterogeneous catalysis and biocatalysis represent the main thrusts of the program. Proposals related to both gas-solid and liquid-solid heterogeneous catalysis are welcome, as are proposals that incorporate concepts from homogeneous catalysis. Biocatalysis proposals should focus on enzymatic catalysis involving engineering of the active site involved in substrate conversion.

Topic areas that are of particular interest include:

- Renewable energy-related catalysis (including applications related to biocatalysis, biomass refining, electrocatalysis, and photocatalysis).
- Catalysis aimed at closing the carbon cycle (especially conversion of CO<sub>2</sub>, methane, and natural gas to fuels and chemical intermediates).

- Catalytic alternatives to traditionally non-catalytic reaction processes, as well as new catalyst designs for established catalytic processes.
- Environmental catalysis (including energy-efficient and green routes to fuels and chemicals).
- Catalytic remediation of feedstocks, process streams, products, or effluents.
- Commercially scalable methods of catalyst synthesis.
- New catalytic materials and architectures (especially those substituting earth-abundant materials for precious and noble metal catalysts).
- Basic understanding of catalytic materials, reaction pathways, kinetics, and surface mechanisms.
- Durable, poison-resistant, and easily regenerable catalyst formulations and designs.
- Advances in tools for catalyst characterization and theoretical/computational catalysis.

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Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13360&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13360&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - Nano-Bio Phenomena and Processes in the Environment - PD 15-1179**

[NOTE: Please note that this program, PD 15-1179, was formerly named Environmental Health and Safety of Nanotechnology (nanoEHS). The name was changed to Nano-Bio Phenomena and Processes in the Environment (NPPE) to reflect the current program description.]

#### Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The goal of the **Nano-Bio Phenomena and Processes in the Environment (NPPE)** program is to support research to further fundamental and quantitative understanding of the interactions of biological and ecological media with nanostructured materials and nanosystems, which include one- to three-dimensional nanostructured materials and heterogeneous nano-bio hybrid assemblies. Such nanostructured materials and systems frequently exhibit novel physical, chemical and biological behavior in living systems and ecological matrices as compared to the bulk scale. This program supports research that explores the interaction of nanoscale materials and systems with both macro and nano-scale systems in biological and environmental media, as well as remediation solutions.

Proposals submitted to NPPE should address one or more of the following research areas:

- Characterization and exploration of interactions at the interfaces between nanostructure materials and nanosystems with surrounding biological and ecological media, including complex and heterogeneous composites;
- Development of predictive tools that are based on fundamental behavior of nanostructures within biological and ecological matrices to advance cost-effective and environmentally benign processing and engineering solutions over full life cycles;
- Examining the transport, interaction, and impact of nanostructured materials and nanosystems on biological systems;
- Complex simulations of molecular systems at interfaces, with these simulations done in conjunction with experimental comparisons, and new theories and complex simulation approaches for determining the transport and transformation of nanoparticles in various media.

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Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=501030&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501030&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - Fluid Dynamics - PD 15-1443**

Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The **Fluid Dynamics** program supports fundamental engineering research on mechanisms and phenomena governing fluid flow from the molecular to the macroscopic scale. Proposed research should contribute to basic understanding of fluid flow phenomena, thus enabling the better design, predictability, efficiency, and control of systems that involve fluids. Areas of emphasis are proposals that address the behavior of new fluid materials and innovative uses of fluids in manufacturing, energy and the environment, materials development, biotechnology, nanotechnology, sensor development, clinical diagnostics and drug delivery. While the research should focus on fundamentals, a clear connection to potential applications with significant societal/technological impact should be outlined.

Major areas of interest include:

- **Bio-inspired Fluid Mechanics and Bio-flows:** biomimetics; intracellular flows; fluid-structure interactions; hemodynamics; swimmers; insect flight; fins; biological flow processes; flows in biomedical devices; and drug delivery.
- **Flow of Complex Fluids:** non-Newtonian fluid mechanics; viscoelasticity; flow of polymer solutions and melts; gelation; flow-induced structuring; DNA dynamics; and new fluid materials.
- **Micro- and Nano-fluidics:** micro-and nano-scale flow phenomena; biomedical microdevices; effects of nano-inclusions on rheological properties; molecular dynamics simulations; and optofluidics.
- **Turbulence and Transition:** theory; high Reynolds number experiments; large eddy simulation; direct numerical simulation; transition to turbulence; 3-D boundary layers; multi-phase turbulent flows; flow control and drag reduction.
- **Interfacial Interactions and Instabilities:** hydrodynamic stability; gas-liquid interfaces; splashing; jetting; droplet interactions; atomization; and wetting.
- **Instrumentation and Flow Diagnostics:** Instrument development; MEMS; shear stress sensors; novel flow imaging; and velocimetry.

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Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13365&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13365&WT.mc_id=USNSF_25&WT.mc_ev=click)

### **NSF CBET - Combustion and Fire Systems - PD 15-1407**

Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The goal of the **Combustion and Fire Systems** program is to generate cleaner global and local environments, enhance public safety, improve energy and homeland security, manufacture new materials, and enable more energy-efficient manufacturing.

The program endeavors to create basic engineering knowledge and solutions that are needed to develop useful combustion applications (such as flame-assisted synthesis of novel materials) and for mitigating the effects of fire. Additional outcomes of interest for this program include: broad-based tools - experimental, diagnostic, and computational - that can be applied to a variety of problems in combustion and fire systems; science & technology for clean and efficient generation of power, both stationary and mobile; combustion science and technology for energy-efficient manufacturing; research that enables clean global and local environments (reduction in combustion generated pollutants - GHGs, NO<sub>x</sub>, Soot, etc.); enhanced public safety and homeland security through research on fire growth, inhibition and suppression; and, educate and train an innovative workforce for power, transportation, and manufacturing industries.

Research areas of interest for this program include:

- **Basic Combustion Science:** Laminar and turbulent combustion of gas, liquid, and solid fuels in premixed, non-premixed, partially premixed, and homogeneous modes over a broad range of temperatures, pressures and length scales; burning of novel and synthetic fuels; development of models and diagnostic tools.
- **Combustion Science related to Climate-change:** Increasing efficiency and reducing pollutants; production and use of renewable fuels; technologies such as oxy-fuel combustion and chemical looping combustion for carbon sequestration.
- **Fire Prevention:** Improved understanding of fires to prevent their spread, inhibit their growth, and suppress them.

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Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13366&WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13366&WT.mc_id=USNSF_25&WT.mc_ev=click)

## **NSF CBET - Process Systems, Reaction Engineering and Molecular Thermodynamics**

### Deadlines:

Pacific routing form due: on or before October 12, 2015

Pacific submit date: no later than October 16, 2015

Full Proposal Window: October 1 - 20, 2015 [October 1 - October 20, Annually Thereafter]

The goal of the **Process Systems, Reaction Engineering and Molecular Thermodynamics (PRM)** program is to advance fundamental engineering research on the rates and mechanisms of important classes of catalyzed and uncatalyzed chemical reactions as they relate to the design, production, and application of catalysts, chemical processes, biochemical processes, and specialized materials that have important impacts on society. The program seeks to advance electrochemical and photochemical processes of engineering significance or with commercial potential, design and optimization of complex chemical and biochemical processes, thermodynamic modeling and experiments that relate molecular dynamics to macroscopic properties and behavior, dynamic modeling and control of process systems and individual process units, reactive processing of polymers/ceramics/thin films, and interactions between chemical reactions and transport processes in reactive systems, for the integration of this information into the design of complex chemical and biochemical reactors. A substantial focus of the PRM program is to impact the chemical manufacturing enterprise by funding projects aimed at zero emissions and environmentally-friendly,

smart manufacturing using sustainable materials. Areas that focus on reactors of all types (fuel cells, batteries, microreactors, biochemical reactors, etc.), reactor design in general, and design and control of all systems associated with energy from renewable sources have a high priority for funding. Proposals should focus on:

- Chemical Reaction Engineering
- Process Design and Control
- Reactive Polymer Processing
- Molecular Thermodynamics

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Program announcement:

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13361&WT.mc\\_id=USNSF\\_25&WT.mc\\_e v=click](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13361&WT.mc_id=USNSF_25&WT.mc_e v=click)