

April 1, 2014

**ANNOUNCEMENT OF FEDERAL FUNDING OPPORTUNITY (FFO)
Center for Nanoscale Science and Technology Postdoctoral and Student Researcher and
Visiting Fellow Measurement Science and Engineering Program**

EXECUTIVE SUMMARY

- **Federal Agency Name:** National Institute of Standards and Technology (NIST), United States Department of Commerce (DoC)
- **Funding Opportunity Title:** Center for Nanoscale Science and Technology Postdoctoral and Student Researcher and Visiting Fellow Measurement Science and Engineering Program
- **Announcement Type:** Initial
- **Funding Opportunity Number:** 2014-NIST-CNST-01
- **Catalog of Federal Domestic Assistance (CFDA) Number:** 11.609, Measurement and Engineering Research and Standards
- **Dates:** Electronic applications must be received no later than 11:59 p.m. Eastern Time, Thursday, May 1, 2014. Paper applications must be received by NIST by 5:00 p.m. Eastern Time, Thursday, May 1, 2014. Applications received after the respective deadlines will not be reviewed or considered. The earliest anticipated start date for awards under this FFO is expected to be approximately September 2014.

When developing your submission timeline, keep in mind that a free annual registration process in the electronic System for Award Management (SAM) (see Section VI.2.b. of this FFO) takes on average fourteen (14) business days for new registrations, and between seven (7) and ten (10) business days for renewal registrations. The SAM registration process will likely take more time if problems are encountered. Also, please keep in mind that applicants using Grants.gov will receive a series of receipts over a period of up to two (2) business days before learning via a validation or rejection whether a Federal agency's electronic system has received its application.

- **Proposal Submission Address:** See Section IV. in the Full Announcement Text of this FFO.
- **Funding Opportunity Description:** The National Institute of Standards and Technology (NIST) Center for Nanoscale Science and Technology (CNST) is soliciting applications from eligible applicants to develop and implement with the CNST a Postdoctoral and Student Researcher and Visiting Fellow Measurement Science and Engineering Program. This program is intended to promote research, training, and practical experience in nanoscale science and technology on-site at the CNST, and to support collaboration in advancing the CNST's mission to support the development of nanotechnology through research on measurement and fabrication methods, standards and technology, and by operating a state-of-the-art nanofabrication facility.
- **Anticipated Amounts:** NIST anticipates making one (1) to three (3) awards for a period of performance of up to five (5) years, consistent with the multi-year funding policy described in Section II of this FFO, at up to a total of approximately \$7,000,000 per year.
- **Funding Instrument:** Cooperative Agreement
- **Who Is Eligible:** Eligible applicants are accredited institutions of higher education in the United States and its territories.

- **Cost Sharing Requirements:** This program does not require cost sharing.

FULL ANNOUNCEMENT TEXT

I. Funding Opportunity Description

The statutory authorities for the NIST Center for Nanoscale Science and Technology (CNST) Postdoctoral and Student Researcher and Visiting Fellow Measurement Science and Engineering Program is 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1, and 15 U.S.C. §7501(b).

The CNST's mission is to support the development of nanotechnology from discovery to production. This is accomplished through research on measurement and fabrication methods and technology, within the CNST NanoLab, and by operating a state-of-the-art nanofabrication facility, the CNST NanoFab. The primary program objectives of the CNST Postdoctoral and Student Researcher and Visiting Fellow Measurement Science and Engineering Program are as follows:

- (1) To advance, through cooperative efforts with one or more universities, research at the CNST consistent with the mission of NIST, and CNST specifically. See <http://www.nist.gov/cnst/> for information about the mission and areas of research collaboration available to program participants in the CNST.
- (2) To advance nanoscience and technology and provide training for the next generation of nanotechnologists by providing opportunities for cooperative researchers at several educational levels to perform research at the CNST under the mentorship of a CNST Project Leader. Opportunities would exist for recent Ph.D. recipients ("Postdoctoral Researchers"), recent Bachelor's Degree recipients ("Postgraduate Researchers"), current graduate and under graduate students ("Graduate Student Researchers," "Student Researchers" or "Research Assistants," as appropriate). All such cooperative researchers must show promise as contributors to the mission of the CNST and be selected on the basis of ability and of the relevance of the proposed work to the mission of the CNST.
- (3) To provide advanced training and access to the CNST's expertise and instrumentation by providing practicing scientists and engineers in the public and private sectors visiting senior research positions ("Visiting Fellows") to perform research at the CNST in collaboration with a CNST Project Leader. The Visiting Fellows must be selected on the basis of ability and on the relevance of the proposed work to the mission of the CNST.
- (4) To provide all cooperative researchers in this program with professional development opportunities, including travel to relevant workshops and conferences and, as appropriate, on-site lectures on such topics as technical and non-technical writing and speaking, scientific ethics, entrepreneurship, and working within academic, industrial, and national laboratory research environments.
- (5) To provide CNST Research Participants (users of the CNST facility) the opportunity to participate in research at the CNST, either in a collaboration within the CNST NanoLab or by using the NanoFab, by providing support for travel.

The CNST intends this financial assistance program to address all of these objectives through one or more Cooperative Agreements. An eligible applicant may propose to collaborate with sub-tier parties in its application.

The CNST supports nanotechnology development from discovery to production through two complementary components: an agile, multidisciplinary research program in the NanoLab, and the state of the art NanoFab facility. NanoLab research is creating the next generation of nanoscale measurement instruments, which are made available through collaboration with CNST scientists. The NanoFab is a shared-use facility operated on a cost-reimbursement basis that is accessible through a simple application process. The NanoFab provides Research Participants from industry, government and academia rapid access to a comprehensive suite of world-class tools and processes for nanofabrication.

CNST research addresses broad areas of interest, including post-complementary metal oxide semiconductor electronics; nanofabrication and nanomanufacturing; energy transport, storage, and conversion; and bionanotechnology. Specific areas of interest include atomic-scale characterization and manipulation; scanning and transmission electron microscopy; focused ion beams; laser-atom manipulation; nanophotonic; nanoplasmonics; optical micro- and nanoelectromechanical systems (MEMS and NEMS); nanomagnetic imaging and dynamics; nanolithography; nanofabrication process development; directed self-assembly; nanoscale properties of soft matter; nanoscale stochastic processes; nanoscale electronic and ionic transport; light-matter interaction, charge and energy transfer processes, catalytic activity, and interfacial structure in energy-related devices (including photovoltaics, thermoelectric, photoanodes, fuel cells, batteries, and supercapacitors); nanobiosensors; nanofluidics; nanomedicine; and theory, modeling, and simulation of nanostructures.

Additional information about the CNST can be found at: <http://www.nist.gov/cnst/>.

A recipient of a CNST Postdoctoral and Student Researcher and Visiting Fellow Measurement Science and Engineering Program award will work jointly with the CNST to publicize CNST nanoscale measurement science interests, including those listed above. A recipient will identify candidates for Postdoctoral and Student Researcher and Visiting Fellow positions, and the CNST and the recipient will collaborate in selecting candidates for CNST research projects based on cooperatively developed criteria. In cases where strong mutual research interests exist between the CNST and the recipient's faculty, a candidate may work jointly with both a CNST Project Leader and a recipient's faculty member. The recipient will provide all stipends, benefits, administrative support, and other expenses associated with the Postdoctoral and Student Researchers and Visiting Fellows (herein referred to as cooperative researchers), using the funds from the Cooperative Agreement.

Candidates to be cooperative researchers through this Program should be able to make significant contributions for public benefit through the CNST nanoscale measurement science and engineering programs of mutual interest. They will do this by collaborating with CNST scientists and engineers at the CNST, commensurate with their level of training and experience. For example, a Visiting Fellow would be expected to perform at the level of an independent researcher; this collaboration is not expected to involve more than minimal guidance from the CNST. In contrast, collaborations with Postdoctoral Researchers may involve more substantial guidance. To be cooperative researchers, the successful candidates must demonstrate excellence in the areas of nanoscale science and engineering relevant to their proposed work, and commensurate with the proposed activities.

The CNST expects applicants to possess the necessary background competencies in nanoscale science and technology to ensure that the research, education, training, and outreach aspects of this Program can be appropriately fulfilled. A successful applicant is also expected to possess organizational capability related to science and technology programs and management, including the ability to effectively and efficiently manage cooperative researchers at the CNST in Gaithersburg, Maryland.

All successful applicants will be required to have a Program Coordinator. Responsibilities of the successful applicant's Program Coordinator include the following: serving as a single point of contact for all cooperative researchers and for the CNST scientists and engineers; assisting cooperative researchers and CNST Project Leaders in implementing the program and resolving any difficulties that may arise; and serving as the signatory on any agreements between the Recipient and NIST and/or each cooperative researcher.

Consistent with 15 U.S.C. § 278g-1(c), applicants are encouraged to promote the participation of underrepresented minorities in any research conducted under an award pursuant to this FFO.

II. Award Information

- 1. Funding Instrument.** The funding instrument that will be used is a cooperative agreement. The nature of NIST's "substantial involvement" will generally be collaboration between NIST and the

recipient organizations. This includes NIST collaboration with a recipient on the scope of work. Additional forms of substantial involvement that may arise are described in Chapter 5.C of the Department of Commerce (DoC) Grants and Cooperative Agreements Manual, which is available at [http://www.osec.doc.gov/oam/grants_management/policy/documents/FINAL%20Master%20DOC%20Grants%20Manual%202013%20\(03.01.13\)_b.pdf](http://www.osec.doc.gov/oam/grants_management/policy/documents/FINAL%20Master%20DOC%20Grants%20Manual%202013%20(03.01.13)_b.pdf)

2. **Multi-Year Funding Policy.** When a proposal for a multi-year award is approved, funding will usually be provided for only the first year of the program. If a project is awarded, NIST has no obligation to provide any additional funding in connection with that award. Continuation of an award to increase funding or extend the period of performance is at the sole discretion of NIST. Continued funding will be contingent upon satisfactory performance, continued relevance to the mission and priorities of the NIST CNST, and the availability of funds.
3. **Funding Availability.** NIST anticipates making one (1) to three (3) awards for a period of performance of up to five (5) years, consistent with the multi-year funding policy described in Section II of this FFO, at up to a total of approximately \$7,000,000 per year.

III. Eligibility Information

1. **Eligible Applicants.** Eligible applicants are accredited institutions of higher education in the United States and its territories.
2. **Cost Sharing or Matching Requirement:** This program does not require cost sharing.
3. **Other:**

Pre-Proposals. NIST is not accepting pre-applications or white papers under this FFO.

IV. Application and Submission Information

1. **Address to Request Application Package:** The standard application package, consisting of the standard forms, i.e., SF-424, SF-424A, SF-424B, SF-LLL, and the CD-511, is available at www.grants.gov. The standard application package, plus an additional copy of the SF-424A for year five (5) of the project, if applicable, may also be requested by contacting the NIST personnel listed below:

Donna Lauren, National Institute of Standards and Technology, 100 Bureau Drive, Mailstop 6200, Gaithersburg, MD, 20899-6200. Phone: (301) 975-3729; email: donna.lauren@nist.gov.

2. **Application Content and Format:**

a. **Required Forms and Documents**

- (1) **SF-424, Application for Federal Assistance.** The SF-424 must be signed by an authorized representative of the applicant's organization. The FFO number 2014-NIST-CNST-01 should be identified in item 12 of the SF-424. The list of certifications and assurances referenced in item 21 of the SF-424 is contained in the SF-424B. Applicants should enter total budget information for the full duration of the project
- (2) **SF-424A, Budget Information - Non-Construction Programs.** The budget should reflect anticipated expenses for the project, considering all potential cost increases, including cost of living adjustments. If the project duration is for five (5) years, the applicant should submit two SF-424A forms. The first SF-424A form should cover the first four (4) years of the project and is the SF-424A form that appears as part of the mandatory forms in the Grants.gov application package. The second SF-424A form should be submitted to cover year five (5) of the project. A fillable SF-424A form can be found at

<http://www.nist.gov/director/ocfo/grants/upload/sf424a.pdf>. Applicants should download the fillable SF-424A form, complete the information for year five (5) of the project and submit the completed form as an attachment by clicking on "Add Attachments" found in item 15 of the SF-424, Application for Federal Assistance (see Section IV.2.a.(9). of this FFO).

(3) **SF-424B, Assurances - Non-Construction Programs**

(4) **CD-511, Certification Regarding Lobbying**

(5) **SF-LLL, Disclosure of Lobbying Activities (if applicable)**

(6) **Technical Proposal.** The Technical Proposal is a word-processed document of no more than twenty five (25) pages responsive to the applicable program description(s) (see Section I. of the FFO) and the evaluation criteria (see Section V.1. of the FFO). It should contain the following information:

- a. **Qualifications:** Proposals should include a description of the institution's qualifications for conducting the proposed project. Applicant institutions must ensure the availability of cooperative researchers for on-site research in Gaithersburg, Maryland.
- b. **Recruiting Plan:** Proposals should include an explanation of the methods and criteria that will be used to identify, recruit, and assess a diverse set of cooperative researcher candidates.
- c. **Objectives:** Proposals should include a description of expected project outcomes and benefits to the public, the cooperative researchers, the CNST and the applicant, expressed in measurable terms.
- d. **Evaluation:** Proposals should include plans for measuring success or determining the degree to which the project objectives were met.
- e. **Other:** Applicants may provide additional information, which is not required to conform to a prescribed format.

(7) **Budget Narrative.** Applicants should use the SF-424A to complete the budget submission. In addition to the SF-424A, applicants must provide a detailed budget narrative to explain fully and justify all proposed project funding including each level of cooperative researcher and other resources, including the costs associated with oversight and the travel support program (see Section I. objective 5 of this FFO).

If a recipient has never received Federal funding from any Federal agency, a certification may be required from a CPA to provide information about whether the applicant has a functioning financial management system that meets the provisions of 15 C.F.R. § 14.21. Therefore, costs for such an assessment and certification should be included in the budget accordingly.

(8) **Indirect Cost Rate Agreement.** If indirect costs are included in the proposed budget, provide a copy of the approved negotiated agreement if this rate was negotiated with a cognizant Federal agency. If the rate was not established by a cognizant Federal agency, provide a statement to this effect. If the successful applicant includes indirect costs in the budget and has not established an indirect cost rate with a cognizant Federal audit agency, the applicant will be required to obtain such a rate in accordance with the Department of Commerce Financial Assistance Standard Terms and Conditions, found at a link in Section VI.1. of this FFO.

(9) **SF-424A, Budget Information - Non-Construction Programs** for year five (5) of the project, if applicable. The SF-424A form that appears as part of the mandatory forms in the

Grants.gov application package covers the first four (4) years of the project. A second SF-424A form should be submitted to cover year five (5) of the project, if applicable. A fillable SF-424A form can be found at <http://www.nist.gov/director/ocfo/grants/upload/sf424a.pdf>. Applicants should download the fillable SF-424A form, complete the information for year five (5) of the project and submit the completed form as an attachment, using the procedure described in the next paragraph.

Items IV.2.b.(1) through IV.2.b.(5) above are part of the standard application package in Grants.gov and can be completed through the download application process. **Items IV.2.b.(6) through IV.2.b.(9) must be completed and attached by clicking on “Add Attachments” found in item 15 of the SF-424, Application for Federal Assistance. This will create a zip file that allows for transmittal of the documents electronically via Grants.gov.** Applicants should carefully follow specific Grants.gov instructions at www.grants.gov to ensure the attachments will be accepted by the Grants.gov system. *A receipt from Grants.gov indicating an application is received does not provide information about whether attachments have been received.*

b. Application Format

- (1) Double-sided.** For paper submissions, print on both sides of the paper for the original and copies (front to back counts as two (2) pages).
- (2) E-mail and facsimile (fax) submissions.** Will not be accepted.
- (3) Number of paper copies.** For paper submissions, one (1) signed stapled original and two (2) stapled copies. If the original proposal is in color, the two (2) copies must also be in color. If submitting electronically via Grants.gov, paper copies are not required.
- (4) Figures, graphs, images, and pictures.** Should be of a size that is easily readable or viewable and may be landscape orientation.
- (5) Font.** Easy to read font (10-point minimum). Smaller type may be used in figures and tables but must be clearly legible.
- (6) Line spacing.** Applicants can use single spacing or double spacing.
- (7) Margins.** One (1) inch top, bottom, left, and right.
- (8) Page layout.** Portrait orientation except for figures, graphs, images, and pictures.
- (9) Page limit.** Applications are limited to twenty-five (25) pages.
 - a. **Page limit includes:** Table of contents (if included), Technical Proposal with all required sections, figures, graphs, tables, images, and pictures.
 - b. **Page limit excludes:** SF-424, Application for Federal Assistance; the SF-424A, Budget Information – Non-Construction Programs form for the first four (4) years of the project and the SF-424A, Budget Information – Non-Construction Programs form for year five (5) of the project, if applicable; SF-424B, Assurances – Non-Construction Programs; SF-LLL, Disclosure of Lobbying Activities; CD-511, Certification Regarding Lobbying, Budget Narrative; and Indirect Cost Rate Agreement, if applicable.
- (10) Page numbering.** Number pages sequentially.
- (11) Page size.** 21.6 by 27.9 centimeters (8 ½ by 11 inches).
- (12) Language.** English.

(13) Staple paper submission. For paper submissions, staple the original signed proposal and each of the two (2) copies securely with one (1) staple in the upper left-hand corner.

(14) Typed document. All applications, including forms, must be typed; handwritten applications and forms will not be accepted.

- 3. Submission Dates and Times.** Electronic applications must be received no later than 11:59 p.m. Eastern Time, Thursday, May 1, 2014. Paper applications must be received by NIST by 5:00 p.m. Eastern Time, Thursday, May 1, 2014. Applications received after the respective deadline will not be reviewed or considered. The earliest anticipated start date for awards under this FFO is expected to be approximately September 2014.

For electronic applications, NIST will consider the date and time stamped on the validation generated by www.grants.gov as the official submission time. NIST strongly recommends that applicants do not wait until the last minute to submit an application. NIST will not make allowance for any late submissions. To avoid any potential processing backlogs due to last minute Grants.gov registrations, applicants are highly encouraged to begin their Grants.gov registration process early.

When developing your submission timeline, keep in mind that (1) a free annual registration process in the electronic System for Award Management (SAM) (see Section VI.2.b. of this FFO) may take more than two weeks, and (2) applicants using Grants.gov will receive a series of receipts over a period of up to two business days before learning via a validation or rejection notification whether a Federal agency's electronic system has received its application.

- 4. Intergovernmental Review.** Proposals under this Program are not subject to Executive Order 12372.

- 5. Funding Restrictions.** Profit or fee is not an allowable cost.

6. Other Submission Requirements

a. Applications may be submitted by paper or electronically.

- (1) Paper applications must be submitted in triplicate (an original and two copies) and submitted to the NIST personnel listed below:

Donna Lauren, National Institute of Standards and Technology, 100 Bureau Drive, Mailstop 6200, Gaithersburg, MD, 20899-6200.

- (2) Electronic applications must be submitted via Grants.gov at www.grants.gov under announcement 2014-NIST-CNST-01.

- a) Submitters of electronic applications should carefully follow specific Grants.gov instructions to ensure the attachments will be accepted by the Grants.gov system. A receipt from Grants.gov indicating an application is received does not provide information about whether attachments have been received. For further information or questions regarding applying electronically for the 2014-NIST-CNST-01 announcement, contact Christopher Hunton by phone at 301-975-5718 or by e-mail at christopher.hunton@nist.gov.
- b) Applicants are strongly encouraged to start early and not wait until the approaching due date before logging on and reviewing the instructions for submitting an application through Grants.gov. The Grants.gov registration process must be completed before a new registrant can apply electronically. If all goes well, the registration process takes three (3) to five (5) business days. If problems are encountered, the registration process can take up to two (2) weeks or more. Applicants must have a Dun and Bradstreet Data Universal Numbering

System (DUNS) number (see Section VI.2.b. of this FFO) and must maintain a current registration in the Federal government's primary registrant database, the System for Award Management (<https://www.sam.gov/>), as explained on the Grants.gov Web site. After registering, it may take several days or longer from the initial log-on before a new Grants.gov system user can submit an application. Only authorized individual(s) will be able to submit the application, and the system may need time to process a submitted application. Applicants should save and print the proof of submission they receive from Grants.gov. If problems occur while using Grants.gov, the applicant is advised to (a) print any error message received and (b) call Grants.gov directly for immediate assistance. If calling from within the United States or from a U. S. territory, please call 800-518-4726. If calling from a place other than the United States or a U. S. territory, please call 606-545-5035. Assistance from the Grants.gov Help Desk will be available around the clock every day, with the exception of Federal holidays. Help Desk service will resume at 7:00 a.m. Eastern Time the day after Federal holidays. For assistance using Grants.gov, you may also contact support@grants.gov.

- c) To find instructions on submitting an application on Grants.gov, Applicants should refer to the "Applicants" tab in the banner just below the top of the www.grants.gov home page. Clicking on the "Applicants" tab produces the "Grant Applicants" page.

In addition to following the "Steps" and instructions described in the "Applicant Actions" section and its sub-categories, further detailed instructions are described in "Applicant Resources" and all of its subcategories. This appears in the box near the top left of the Grant Applicants page. Applicants should follow the links associated with each subcategory.

Applicants will receive a series of receipts during a process of up to two business days before the application is either validated as electronically received by the Federal agency system, or rejected by it. Closely following the detailed information in these subcategories will increase the likelihood of acceptance of the application by the Federal agency's electronic system.

Applicants should pay close attention to the instructions under "Applicant FAQs," as it contains information important to successful submission on Grants.gov, including essential details on the naming conventions for attachments to Grants.gov applications.

All applicants, both electronic and paper submitters, should be aware that adequate time must be factored into applicants' schedules for delivery of their application. Submitters of electronic applications are advised that volume on Grants.gov may be extremely heavy on the deadline date, and if Grants.gov is unable to accept applications electronically in a timely fashion, applicants are encouraged to exercise their option to submit applications in paper format. Submitters of paper applications should allow adequate time to ensure a paper application will be received on time, taking into account that Federal Government security screening for U.S. Postal Service mail may delay receipt of mail for up to two (2) weeks and that guaranteed express mailings and/or couriers are not always able to fulfill their guarantees.

Refer to important information in Section IV.3. Submission Dates and Times, to help ensure your application is received on time.

If timely application submissions are interrupted by the manifestation a natural disaster, such as a hurricane, blizzard, or similar extreme inclement weather event, or by the aftermath of such an event, such as power outages and/or Federal, public and/or private institution closures, NIST may: (1) consider an appeal for an individual situation involving such circumstances, or (2) extend the due date for all applicants. For an individual appeal, an applicant must request a deadline waiver and present in writing compelling circumstances, related only to such unavoidable causes involving forces of nature, which must be received by the NIST Programmatic and Technical Questions Point of Contact as listed in Section VII., within three business days of the deadline, by 5:00 p.m. Eastern Time. In addition, in the event of Federal government closure on the application deadline day, the deadline will be extended for all

applicants to the next business day, under the same conditions described in the FFO. In the event of Federal government closure(s) during the week before the application deadline, NIST will post a statement at the top of the FFO on www.grants.gov [and at <http://www.nist.gov/cnst/>] as soon as practicable indicating whether the deadline is extended for all applicants, under the same conditions described in the FFO. The FFO may be amended to extend the deadline under these and other circumstances. For information on signing up for any amendments to the FFO that may arise, refer to Section IV.6.b. of this FFO.

- b. Amendments.** Any amendments to this FFO will be announced through Grants.gov. Applicants may sign up for Grants.gov FFO amendments or may request copies from Donna Lauren by telephone at (301) 975-3729; or email: donna.lauren@nist.gov.

V. Application Review Information

- 1. Evaluation Criteria.** The evaluation criteria that will be used in evaluating applications are as follows:

- a. Technical Merit of the Proposal (0 – 40 points).** Assesses the extent to which the proposal addresses the program goals and objectives, including but not limited to, the quality of the recruitment plan and the evaluation plan.
- b. Overall Qualifications of the Applicant (0 – 40 points).** Assesses the extent to which the applicant possesses the necessary experience, training, facilities, and administrative resources to accomplish the project.
- c. Quality of the plan for providing support for travel for Research Participants to participate in research at the CNST (0 – 10 points).** Assesses the plan for advertising, collecting applications for, prioritizing, and administering the award of travel funds to allow potential, remotely located, Research Participants access to the CNST.
- d. Project Costs (0 – 10 points).** The proposal budget is evaluated to determine if it is realistic and commensurate with the project needs and time-frame.

2. Review and Selection Process

- a. Initial Administrative Review of Proposals.** An initial review of applications will be conducted, and applications determined to be ineligible, incomplete, and/or non-responsive may be eliminated from further review.
- b. Review of Eligible, Complete, and Responsive Proposals.** At least three (3) independent, objective individuals knowledgeable about the particular scientific area described in the application will conduct a technical review of each application, based on the evaluation criteria (see Section V.1. of this FFO). If non-federal reviewers are used, the reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.
- c. Ranking and Selection.** Based on the reviewers' scores, a final rank order will be prepared and provided to the Selecting Official for further consideration. The Selecting Official, who is the NIST CNST Director, or designee, will make recommendations to the NIST Grants Management Division regarding the final application selections. The Selecting Official shall recommend applications for awards based upon the rank order of the applications, but may recommend applications out of rank based on one or more of the following selection factors:
 - a.** availability of Federal funds, and

- b. balance/distribution of funds to ensure research opportunities for all types of cooperative researchers and CNST scientific research areas described in Section I. of this FFO.

NIST reserves the right to negotiate the budget costs with the selected applicant. Negotiations may include requesting that the applicant remove certain costs. Additionally, NIST may request that the applicant modify objectives or work plans and provide supplemental information required by the agency prior to award. NIST also reserves the right to reject an application where information is uncovered that raises a reasonable doubt as to the responsibility of the applicant. NIST may select some, all, or none of the applications. The final approval of selected applications and issuance of awards will be by the NIST Grants Officer. The award decisions of the Grants Officer are final.

- 3. **Anticipated Announcement and Award Dates.** The earliest anticipated start date for awards under this FFO is expected to be approximately September 2014.

4. Additional Information

- a. **Application Replacement Pages.** Applicants may not submit replacement pages and/or missing documents once an application has been submitted. Any revisions must be made by submission of a new application that must be received by NIST by the submission deadline.
- b. **Notification to Unsuccessful Applicants.** Unsuccessful applicants will be notified in writing.
- c. **Retention of Unsuccessful Applications.** For paper applications, one (1) of each non-selected application will be retained for three (3) years for record keeping purposes and the other two (2) copies will be destroyed. After three (3) years, the remaining copy will be destroyed. For electronic applications, an electronic copy of each non-selected application will be retained for three (3) years for record keeping purposes. After three (3) years, it will be destroyed.

VI. Award Administration Information

- 1. **Award Notices.** Successful applicants will receive an award from the NIST Grants Officer. The award cover page, i.e., CD-450, Financial Assistance Award is available at http://ocio.os.doc.gov/s/groups/public/@doc/@os/@ocio/@oitpp/documents/content/dev01_002513.pdf and the DoC Financial Assistance Standard Terms and Conditions (January 2013) are available at http://www.osc.doc.gov/oam/grants_management/policy/documents/DOC_Standard_Terms_and_Conditions_01_10_2013.pdf.
- 2. **Administrative and National Policy Requirements**
 - a. **DoC Pre-Award Notification Requirements.** The DoC Pre-Award Notification Requirements for Grants and Cooperative Agreements, 77 FR 74634 (December 17, 2012), are applicable to this FFO and are available at <https://www.federalregister.gov/articles/2012/12/17/2012-30228/departments-of-commerce-pre-award-notification-requirements-for-grants-and-cooperative-agreements>.
 - b. **Employer/Taxpayer Identification Number (EIN/TIN), Dun and Bradstreet Data Universal Numbering System (DUNS), and System for Award Management (SAM).** All applicants for Federal financial assistance are required to obtain a universal identifier in the form of DUNS number and maintain a current registration in the Federal government's primary registrant database, SAM. On the form SF-424 items 8.b. and 8.c., the applicant's 9-digit EIN/TIN and 9-digit DUNS number must be consistent with the information in SAM (<https://www.sam.gov/>) and the Automated Standard Application for Payment System (ASAP), if the applicant has received prior Federal awards and has received award funding through ASAP. For complex organizations with multiple EIN/TIN and DUNS numbers, the EIN/TIN and DUNS numbers MUST be the numbers for the applying organization. Organizations that provide incorrect/inconsistent EIN/TIN and DUNS numbers may experience significant delays in receiving funds if their application is selected for funding. Confirm that the EIN/TIN and DUNS number are consistent with the information on the SAM and ASAP. **Please note**

that a federal assistance award cannot be issued if the designated recipient's registration in the System for Award Management (SAM.gov) is not current at the time of the award.

Per 2 C.F.R. Part 25, each applicant must:

- a. Be registered in the Central Contractor Registry (CCR) before submitting an application noting the CCR now resides in SAM;
- b. Maintain an active CCR registration, noting the CCR now resides in SAM, with current information at all times during which it has an active Federal award or an application under consideration by an agency; and
- c. Provide its DUNS number in each application it submits to the agency.

The applicant can obtain a DUNS number from Dun and Bradstreet. A DUNS number can be created within one business day. The CCR or SAM registration process may take in excess of fourteen (14) business days to complete. If you are currently registered with the CCR, you may not need to make any changes. However, please make certain that the EIN/TIN associated with your DUNS number is correct. Also note that you will need to update your CCR registration annually. This may take three or more business days to complete. Information about SAM is available at www.sam.gov. See also 2 C.F.R. Part 25 and the *Federal Register* notice published on September 14, 2010, at 75 FR 55671.

Please note that a federal assistance award cannot be issued if the designated recipient's registration in the System for Award Management (SAM.gov) is not current at the time of the award.

- c. **Collaborations with NIST Employees.** Collaboration with NIST is presumed in the Center for Nanoscale Science and Technology Postdoctoral Researcher and Visiting Fellow Measurement Science and Engineering Program. While it is not expected that an applicant will propose activities involving specific NIST staff members, if any applicant does so, the statement of work should include a statement of this intention, a description of the collaboration, and prominently identify the NIST employee(s) involved. Any collaboration by a NIST employee must be approved by appropriate NIST management and is at the sole discretion of NIST. Prior to beginning the merit review process, NIST will verify the approval of the proposed collaboration. Any unapproved collaboration will be stricken from the proposal prior to the merit review.
- d. **Use of NIST Intellectual Property.** If the applicant anticipates using any NIST-owned intellectual property to carry out the work proposed, the applicant should identify such intellectual property. This information will be used to ensure that no NIST employee involved in the development of the intellectual property will participate in the review process for that competition. In addition, if the applicant intends to use NIST-owned intellectual property, the applicant must comply with all statutes and regulations governing the licensing of Federal government patents and inventions, described in 35 U.S.C. §§ 200-212, 37 C.F.R. Part 401, 15 C.F.R. § 14.36, and in Section B.21 of the DoC Pre-Award Notification Requirements, 77 FR 74634 (December 17, 2012). Questions about these requirements may be directed to the Chief Counsel for NIST, (301) 975-2803.

Any use of NIST-owned intellectual property by an applicant is at the sole discretion of NIST and will be negotiated on a case-by-case basis if a project is deemed meritorious. The applicant should indicate within the statement of work whether it already has a license to use such intellectual property or whether it intends to seek one.

If any inventions made in whole or in part by a NIST employee arise in the course of an award made pursuant to this FFO, the United States government may retain its ownership rights in any such invention. Licensing or other disposition of NIST's rights in such inventions will be determined solely by NIST, and include the possibility of NIST putting the intellectual property into the public domain.

- e. **Research Activities Involving Human Subjects, Human Tissue, Data or Recordings Involving Human Subjects Including Software Testing.** Any application that includes research activities involving human subjects, human tissue/cells, or data or recordings involving human subjects, including software testing, must meet the requirements of the Common Rule for the Protection of

Human Subjects (“Common Rule”), codified for the Department of Commerce (DoC) at 15 C.F.R. Part 27. In addition, any such application that includes research activities on these topics must be in compliance with any statutory requirements imposed upon the Department of Health and Human Services (DHHS) and other Federal agencies regarding these topics, all regulatory policies and guidance adopted by DHHS, the Food and Drug Administration, and other Federal agencies on these topics, and all Executive Orders and Presidential statements of policy on these topics.

NIST reserves the right to make an independent determination of whether an applicant's research activities involve human subjects. NIST policy also requires a NIST administrative review for research involving human subjects approved by a non-NIST Institutional Review Board (IRB). (15 C.F.R. § 27.112 Review by Institution.) If NIST determines that your application involves human subjects, you will be required to provide additional information for review and approval. If an award is issued, no research activities involving human subjects shall be initiated or costs incurred under the award until the NIST Grants Officer issues written approval. Retroactive approvals are not permitted.

NIST will accept applications that include exempt and non-exempt human subjects research activities. Organizations that have an IRB are required to follow the procedures of their organization for approval of exempt and non-exempt research activities that involve human subjects, if the application is funded. Non-exempt human subjects research activities by either domestic or foreign organizations will be required to have protocols approved by a cognizant active IRB currently registered with the Office for Human Research Protections (OHRP) within the DHHS that is linked to the engaged organizations possessing a currently valid Federalwide Assurance (FWA) on file from OHRP. Information regarding how to apply for an FWA and register and IRB with OHRP can be found at <http://www.hhs.gov/ohrp/assurances/index.html>. NIST relies only on OHRP-issued FWAs and IRB Registrations for both domestic and foreign organizations for NIST supported research involving human subjects. NIST will not issue its own FWAs or IRB Registrations for domestic or foreign organizations.

The applicant should clearly indicate in the application, by separable task, all research activities believed to be exempt or non-exempt research involving human subjects and the expected institution(s) where the research activities involving human subjects may be conducted.

If an activity/task involves data obtained through intervention or interaction with living individuals or identifiable private information obtained from or about living individuals but the applicant participant(s) believes that the activity/task is not research as defined under the Common Rule, the following may be requested for that activity/task:

Justification, including the rationale for the determination and in some cases additional documentation, to support a determination that the activity/task in the application is not research as defined under the Common Rule. See 15 C.F.R. § 27.102. This may result in a NIST determination. If the applicant participant(s) uses a cognizant IRB that provides an IRB approval, a copy of that IRB approval documentation will be required by NIST. The applicant participant(s) is not required to establish a relationship with a cognizant IRB if they do not have one, but if the applicant participant(s) has a cognizant IRB that requires review of the activity/task, or the applicant participant(s) elects to obtain IRB review, a copy of the IRB approval documentation will be required by NIST.

If the application appears to NIST to include exempt research activities, and the performer of the activity or the supplier and/or the receiver of the biological materials, or data from human subjects ***does not*** have a cognizant IRB to provide an exemption determination, the following information may be requested during the review process so that NIST can evaluate whether an exemption under the Common Rule applies (see 15 C.F.R. § 27.101).

- (a) The name(s) of the institution(s) where the exempt research will be conducted; and/or from which biological materials, or data from human subjects will be provided.

- (b) A copy of the protocol of the research to be conducted; and/or the biological materials, or data from human subjects to be collected/provided, not pre-existing samples (*i.e.*, will proposed research collect only information without personal identifiable information, will biological materials or data be de-identified and when and by whom was the de-identification performed, how were the materials or data originally collected).
- (c) For pre-existing biological materials, or data from human subjects provide copies of the consent forms used for collection and a description of how the materials or data were originally collected and stripped of personal identifiers. If copies of consent forms are not available, explain.
- (d) Any additional clarifying documentation that NIST may request during the review process in order to make a determination that the activity or use of biological materials or data from human subjects is exempt under the Common Rule (see 15 C.F.R. § 27.101).

If the application appears to NIST to include research activities (exempt or non-exempt) involving human subjects, and the performer of the activity has a cognizant IRB, the following information may be requested during the review process:

- (1) The name(s) of the institution(s) where the research will be conducted;
- (2) The name(s) and institution(s) of the cognizant IRB(s), and the IRB registration number(s);
- (3) The FWA number of the applicant linked to the cognizant IRB(s);
- (4) The FWAs associated with all organizations engaged in the planned research activity/task-linked to the cognizant IRB;
- (5) If the IRB review(s) is pending, the estimated start date for research involving human subjects;
- (6) The IRB approval date (if currently approved for exempt or non-exempt research);
- (7) If any FWAs or IRB registrations are being applied for, that should be clearly stated.

Additional documentation may be requested by NIST for performers with a cognizant IRB during review of the application, and may include the following for research activities involving human subjects that are planned in the first year of the award:

- (1) A signed (by the study principal investigator) copy of each applicable final IRB-approved protocol;
- (2) A signed and dated approval letter from the cognizant IRB(s) that includes the name of the institution housing each applicable IRB, provides the start and end dates for the approval of the research activities, and any IRB-required interim reporting or continuing review requirements;
- (3) A copy of any IRB-required application information, such as documentation of approval of special clearances (*i.e.*, biohazard, HIPAA, etc.) conflict-of-interest letters, or special training requirements;
- (4) A brief description of what portions of the IRB submitted protocol are specifically included in the application submitted to NIST, if the protocol includes tasks not included in the application, or if the protocol is supported by multiple funding sources. For protocols with multiple funding sources, NIST will not approve the study without a non-duplication-of-funding letter indicating that no other federal funds will be used to support the tasks proposed under the proposed research or ongoing project;
- (5) If a new protocol will only be submitted to an IRB if an award from NIST is issued, a draft of the proposed protocol may be requested;
- (6) Any additional clarifying documentation that NIST may request during the review process to perform the NIST administrative review of research involving human subjects. (see 15 C.F.R. § 27.112 Review by Institution.)

- f. Research Applications Involving Live Vertebrate Animals.** Any application that includes research activities involving live vertebrate animals, that are being cared for, euthanized, or used by participants in the application to accomplish research goals, teaching, or testing, must be in compliance with the National Research Council's "Guide for the Care and Use of Laboratory Animals," which can be obtained from National Academy Press, 500 5th Street, N.W., Department

285, Washington, DC 20055. In addition, such applications must meet the requirements of the Animal Welfare Act (7 U.S.C. § 2131 et seq.), 9 C.F.R. Parts 1, 2, and 3, and if appropriate, 21 C.F.R. Part 58. These regulations do not apply to proposed research using **preexisting** images of animals or to research plans that do not include live animals. These regulations also do not apply to obtaining stock items from animal material suppliers (e.g., tissue banks), such as cell lines and tissue samples, or from commercial food processors, where the vertebrate animal was euthanized for food purposes and not for sample collection. NIST does require documentation for obtaining custom samples from live vertebrate animals from animal material suppliers and other organizations (i.e., universities, companies, and government laboratories, etc.). Custom samples includes samples from animal material suppliers, such as when a catalog item indicates that the researcher is to specify the characteristics of the live vertebrate animal to be used, or how a sample is to be collected from the live vertebrate animal.

The applicant should clearly indicate in the application, by separable task, all research activities believed to include research involving live vertebrate animals and the institution(s) where the research activities involving live vertebrate animals may be conducted.

NIST reserves the right to make an independent determination of whether an applicant's research activities involve live vertebrate animals or custom samples from live vertebrate animals. If NIST determines that the application includes research activities or custom samples involving live vertebrate animals, you will be required to provide additional information for review and approval. If an award is issued, no research activities involving live vertebrate animals subjects shall be initiated or costs incurred under the award until the NIST Grants Officer issues written approval.

If the applicant's application appears to include research activities or custom sample collections involving live vertebrate animals the following information may be requested during the application review process:

- (1) The name(s) of the institution(s) where the animal research will be conducted and/or custom samples collected;
- (2) The assurance type and number, as applicable, for the cognizant Institutional Animal Care and Use Committee (IACUC) where the research activity is located. [For example: Animal Welfare Assurance from the Office of Laboratory Animal Welfare (OLAW) should be indicated by the OLAW assurance number, i.e. A-1234; an USDA Animal Welfare Act certification should be indicated by the certification number i.e. 12-R-3456; and an Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC) should be indicated by AAALAC.]
- (3) The IACUC approval date (if currently approved);
- (4) If the review by the cognizant IACUC is pending, the estimated start date for research involving vertebrate animals;
- (5) If any assurances or IACUCs need to be obtained or established, that should be clearly stated.

Additional documentation may be requested by NIST during review of the application and may include the following for research activities and/or custom sample collections involving live vertebrate animals that are planned in the first year of the award:

- (1) A signed (by the Principal Investigator) copy of the IACUC approved Animal Study Application (ASP);
- (2) Documentation of the IACUC approval indicating the approval and expiration dates of the ASP; and
- (3) If applicable, a non-duplication-of-funding letter if the ASP is funded from several sources.
- (4) If a new ASP will only be submitted to an IACUC if an award from NIST issued, a draft of the proposed ASP may be requested.
- (5) Any additional clarifying documentation that NIST may request during review of applications to perform the NIST administrative review of research involving live vertebrate animals.

For more information regarding human subjects or research projects involving live vertebrate animals, contact Linda Beth Schilling, Senior Coordinator and Policy Advisor for Human & Animal Subjects Research at NIST (email: linda.schilling@nist.gov; phone: 301-975-2887).

- g. Funding Availability and Limitation of Liability.** Funding for the program listed in this FFO is contingent upon the availability of appropriations. In no event will NIST or DoC be responsible for application preparation costs if the program fails to receive funding or is cancelled because of agency priorities. Publication of this FFO does not oblige NIST or DoC to award any specific project or to obligate any available funds.
- h. DoC Representation by Corporations Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction Under Any Federal Law.** In accordance with the Federal appropriations law expected to be in effect at the time of project funding, NIST anticipates that the selected applicants will be provided a form and asked to make a representation regarding any unpaid delinquent tax liability or felony conviction under any Federal law.

3. Reporting

- a. Reporting Requirements.** Per the reporting requirements described in Sections A.01 Financial Reports and B.01 Performance (Technical) Reports of the DoC Financial Assistance Standard Terms and Conditions dated January 2013 (http://www.osec.doc.gov/oam/grants_management/policy/documents/DOC_Standard_Terms_and_Conditions_01_10_2013.pdf), the following reporting requirements shall apply:
 - (1) Financial Reports.** Each award recipient will be required to submit an SF-425, Federal Financial Report in triplicate (an original and two (2) copies), on a semi-annual basis for the periods ending March 31 and September 30 of each year. Reports will be due within 30 days after the end of the reporting period.
 - (2) Performance (Technical) Reports.** Each award recipient will be required to submit a technical progress report in triplicate (an original and two (2) copies), on a semi-annual basis for the periods ending March 31 and September 30 of each year. Reports will be due within 30 days after the end of the reporting period. A final technical progress report shall be submitted within 90 days after the expiration date of the award. Two (2) copies of the technical progress report shall be submitted to the Project Manager and the original report to the NIST Grants Officer. Technical progress reports shall contain information as prescribed in 15 C.F.R. § 14.51.
 - (3) Patent and Property Reports.** From time to time, and in accordance with the Uniform Administrative Requirements and other terms and conditions governing the award, the recipient may need to submit property and patent reports.
- b. OMB Circular A-133 Audit Requirements.** Single or program-specific audits shall be performed in accordance with the requirements contained in OMB Circular A-133, "*Audits of States, Local Governments, and Non-Profit Organizations*," and the related *Compliance Supplement*. OMB Circular A-133 requires any non-Federal entity (*i.e.*, including non-profit institutions of higher education and other non-profit organizations) that expends Federal awards of \$500,000 or more in the recipient's fiscal year to conduct a single or program-specific audit in accordance with the requirements set out in the Circular. Applicants are reminded that NIST, the DoC Office of Inspector General or another authorized Federal agency may conduct an audit of an award at any time.
- c. Federal Funding Accountability and Transparency Act of 2006.** In accordance with 2 C.F.R. Part 170, all recipients of a Federal award made on or after October 1, 2010, are required to comply with reporting requirements under the Federal Funding Accountability and Transparency Act of 2006 (Pub. L. No. 109-282). In general, all recipients are responsible for reporting sub-awards of \$25,000 or more. In addition, recipients that meet certain criteria are responsible for reporting executive

compensation. Applicants must ensure they have the necessary processes and systems in place to comply with the reporting requirements should they receive funding. Also see the *Federal Register* notice published September 14, 2010, at 75 FR 55663.

VII. Agency Contact(s)

Questions should be directed to the following contact persons:

Subject Area	Point of Contact
Programmatic and technical questions	Donna Lauren Center for Nanoscale Science and Technology NIST Phone: 301-975-3729 Fax: 301-975-8026 E-mail: donna.lauren@nist.gov
Application submission through Grants.gov	Christopher Hunton Administrative Support & Document Control Office NIST Phone: 301-975-5718 Fax: 301-975-8884 E-mail: christopher.hunton@nist.gov or Grants.gov Phone: 800-518-4726 E-mail: support@grants.gov
Grant rules and regulations	Jannet Cancino Grants Management Division NIST Phone: 301-975-6544 Fax: 301-975-6458 E-mail: jannet.cancino@nist.gov