

ANNOUNCEMENT OF FEDERAL FUNDING OPPORTUNITY

EXECUTIVE SUMMARY

- **Federal Agency Name:** National Institute of Standards and Technology (NIST), Department of Commerce (DOC)
- **Funding Opportunity Title:** Manufacturing Extension Partnership (MEP) Availability of Funds for MEP State Relations Support
- **Announcement Type:** Initial
- **Funding Opportunity Number:** 2011-NIST-MEP-STATE-PARTNERSHIPS
- **Catalog of Federal Domestic Assistance (CFDA) Number:** 11.609
- **Dates:** All applications must be **received or postmarked** no later than 5:00 p.m. Eastern Time on **March 11, 2011**. Late proposals will not be reviewed.
- **Proposal Submission:**
 - For electronic submission - Applicants should follow the Application Instructions provided at www.grants.gov
 - Paper submission: National Institute of Standards and Technology
Manufacturing Extension Partnership
c/o Tony Gomez
100 Bureau Drive, Stop 4800
Gaithersburg, MD 20899-4800

Applicants must submit one signed original and two (2) copies of their proposal that is plainly marked on the outside of the package that it contains a Manufacturing Extension Partnership proposal.

- **Funding Opportunity Description:** The National Institute of Standards and Technology invites proposals from eligible organizations to provide in-depth collaborative support in developing stakeholder relationships that are critical to the success of the MEP program, based on expertise and knowledge of state technology agendas.

The National Institute of Standards and Technology Manufacturing Extension Partnership (NIST MEP) is a federal-state-industry partnership program. The MEP system of Centers and field offices throughout the U.S. provides a mechanism to integrate federal and state public policy goals, responding to market forces and addressing the needs of individual manufacturers. To make the most of this partnership, NIST MEP strives to balance the priorities of U.S. national policy with those of state partners to create a robust and effective program providing U.S. manufacturers with the tools they need to grow and remain globally competitive.

Given the unique nature of the MEP network, success depends on the understanding and alignment of state policy goals and objectives with national policy to create a partnership that leverages the strength of each entity. MEP increasingly is focused on helping manufacturers identify and adopt

new technologies for improved products, process, business practices and the development of new products. Two factors will impact the success of this effort: 1) Understanding the priorities of state officials, as well as agency missions, resources, capabilities, and agendas, and 2) Developing the capacity to align these agendas with MEP priorities supporting continuous improvement, growth, sustainability, supply chains, innovation and technology acceleration in manufacturing.

- **Total Amount to be Awarded:** It is anticipated that up to \$1,500,000 will be awarded in the first year to provide state technology and manufacturing extension support activities and to conduct a innovation forum with federal and state partners. Future year award amount for state technology and manufacturing extension support is not expected to exceed \$1,000,000 per year for up to four additional years.
- **Anticipated Amounts:** NIST anticipates funding one proposal at the level of up to \$1,500,000 for the first year of funding for a multi-year award. Proposals will be considered for budgets and performance periods of five years. If a proposal for a multi-year award is approved, funding will generally be provided for only the first year of the program. If a proposal is selected for funding, NIST has no obligation to provide any additional funding in connection with that award. Continuation of an award to increase funding or to extend the period of performance is at the total discretion of NIST. Funding for each subsequent year of a multi-year proposal will be contingent on satisfactory progress, continued relevance for the mission and priorities of MEP, existing legislative authority, and the availability of funds.

The proposed work is expected to start within 30 days of award notice.

- **Funding Instrument:** Cooperative Agreement. The nature of NIST’s “substantial involvement” will generally be collaboration with the recipient by working with the recipient in carrying out the scope of work, or specifying direction or redirection of the scope of work due to inter-relationships with other projects requiring such cooperation.
- **Who Is Eligible:** The award recipient must be a U.S.-based not-for-profit institution or organization or an entity or agency of state or local government. For the purpose of this solicitation, state and local agencies and non-profit organizations including universities, community colleges, and independent nonprofit organizations, are eligible. Eligible applicants may be consortia of state and local agencies and/or non-profit institutions.
- **Cost Sharing Requirements:** A non-federal cost share contribution from the applicant is not required.

FULL ANNOUNCEMENT TEXT

I. Funding Opportunity Description

The National Institute of Standards and Technology invites proposals from qualified organizations for projects in the areas noted below. These activities will enhance MEP’s relationships with state stakeholders and partners to improve productivity and technological performance in United States manufacturing, achieving the MEP mission through the participation of individuals from industry, universities, State governments, other Federal agencies.

All organizations meeting eligibility requirements provided herein are invited to submit proposals that address both of the key areas below:

1. Network building and expansion: The Recipient will collaborate with NIST MEP, MEP centers, and partners to facilitate the development of effective working relationships for MEP Federal and Center officials among a wide range of stakeholders. Stakeholders include state agency leaders, policy makers, practitioners involved in technology and workforce-based economic development planning and program implementation, and others as suggested by the Recipient. The Recipient, the MEP system, and NIST MEP will share information about the needs and agendas of state stakeholders, risks and opportunities, using their in-depth understanding of budget data, current trends, emerging issues. The Recipient will propose ideas that help to implement initiatives for encouraging a dialogue among interested parties, including states, MEP Centers, partner organizations, and industry, about how the MEP partner network and MEP next generation initiatives best fit into state strategies and priorities, and how manufacturers and the public benefit from manufacturing extension activities. The Recipient will work with entities in the MEP system to help prioritize states for attention, develop strategies to address opportunities and concerns, recommend effective communication strategies, and convene meetings of the MEP Centers, partners and stakeholders as needed to facilitate the partnership development. The Recipient will demonstrate the ability to provide nationwide access to state relations support services.

2. Research/knowledge development and sharing: The Recipient will collaborate with NIST MEP, MEP centers, and partners to compile and analyze information available about current state budgets, economic development and technology policy initiatives, program evaluation practices, and the nature of the partnership between states, MEP Centers, industry and NIST. To help the partners in the MEP system sustain and improve state relationships, the Recipient will collaborate with the MEP system to track state activities, share insights and available research, provide technical assistance to resolve problems that arise, and undertake related activities to facilitate the desired partnerships.

NIST does not prescribe any particular management or operational structure for this effort, but work proposed should be based upon approaches or structures used by collaborative providers of support services that have demonstrated success.

Further information regarding MEP Program is provided in the information packet that can be obtained at www.grants.gov with additional background information provided at <http://www.nist.gov/mep>.

Authority: 15 CFR 272(b)(1), (b)(4), and (c)(17).

II. Award Information

NIST anticipates funding one award at the level of up to \$1,500,000 for the first year of the project.

An award will be provided for the establishment or continuation of activities to provide in-depth expertise and knowledge of state technology agendas and assistance developing stakeholder relationships that are critical to the success of the MEP program, as described in the Funding Opportunity Description above.

Proposals should address anticipated expenses for the first year plus for four additional years, considering all potential cost increases, including cost of living adjustments. The award may be continued on an annual basis by NIST. Continuation of an award to increase funding or to extend the period of performance is at the total discretion of NIST. Funding for each subsequent year of a multi-year proposal will be contingent on satisfactory progress, continued relevance for the mission and priorities of MEP, existing legislative authority, and the availability of funds.

Work is expected to start within 30 days of award notice.

III. Eligibility Information

1. Eligible Applicants

Who Is Eligible: The award recipient must be a U.S.-based not-for-profit institution or organization or an entity or agency of state or local government. For the purpose of this solicitation, state and local agencies and non-profit organizations including universities, community colleges, and independent nonprofit organizations, are eligible. Eligible applicants may be consortia of state and local agencies and/or non-profit institutions.

2. Cost Sharing Requirement

A non-federal cost share contribution from the applicant is not required.

IV. Application/Proposal and Submission Information

1. Application Package

The forms listed in 2.a. through 2.e. below are available as part of the Grants.gov application package and can be completed through the download application process. Requests for paper copies of the application package can be made to Anthony Gomez at 301-975-8139 or tgomez@nist.gov.

2. Content and Form of Application/Proposal Submission

Complete applications/proposals must, at a minimum, include the following forms and documents:

- a. SF-424, Application for Federal Assistance
- b. SF-424A, Budget Information Non-Constructions
- c. SF-424B, Assurances Non-Construction
- d. CD-511, Certification Regarding Debarment, Suspension and Other Responsibility Matters; Drug-Free Workplace Requirements and Lobbying
- e. SF-LLL, Disclosure of Lobbying Activities (if applicable).

The SF and CD series of forms will not be considered part of the page count of the proposal. The proposal should include the following information:

- A. An executive summary of the proposed approach, consistent with the Evaluation Criteria stated in this notice.
- B. A description of the proposed approach, sufficient to permit evaluation of the proposal, in accordance with the proposal Evaluation Criteria stated in this notice.
- C. A detailed budget for the proposed project that breaks out all expenses for year 1 of operation.
- D. A continuation budget for potential years 2 through 5. If the project is continued, this information can be updated each year.
- E. A description of the qualifications and proposed operational or management activities of key personnel who will be assigned to work on the proposed project, including examples of past experience working with state government representatives and related organizations.

- F. A statement of work that discusses the specific tasks proposed to be carried out, including a schedule of measurable events and milestones.

The proposal must not exceed 25 typewritten pages in length for the basic proposal document; the mandatory forms are not included in the page count. The proposal must contain both technical and cost information. The proposal page count shall include every page including pages that contain words, table of contents, executive summary, management information and qualifications, resumes, figures, tables, and pictures. All hard copy proposals shall be printed such that pages are single-sided, with no more than fifty-five (55) lines per page. Use 21.6 x 27.9 cm (8 ½" x 11") paper or A4 metric paper. Use an easy to read font of not more than about 5 characters per cm (fixed pitch font of 12 or fewer characters per inch or proportional font of point size 10 or larger). Smaller type may be used in figures and tables but must be clearly legible. Margins on all sides (top, bottom, left and right) must be at least 2.5 cm (1"). The applicant may submit a separately bound document of appendices containing other supporting information. The proposal should be self-contained and not rely on the appendices for meeting criteria. Basic proposal documents exceeding the 25 page requirement will not be reviewed.

If submitting a paper application, each applicant must submit one signed original and two paper copies of the complete application. Facsimile, electronic mail, and or forms of electronic application submissions other than Grants.gov will not be accepted.

The application for this program consists of two mandatory elements: a) forms (the SF and CD forms listed in section IV.2 of this Federal Funding Opportunity notice) and b) documents the applicant creates in response to the requirements contained in this Federal Funding Opportunity notice. If applying electronically through Grants.gov, combine in one file those required documents contained in this notice and attach the resulting file to field 15 of the SF-424 form by clicking on the oblong marked "Add Attachments."

3. Submission Dates and Times

All applications must be **received or postmarked** no later than 5:00 p.m. Eastern Time on **March 11, 2011**. This deadline applies to any mode of proposal submission, including courier, express mailing, and electronic. Do not wait until the last minute to submit a proposal. NIST will not make any allowances for late submissions, including incomplete Grants.gov registration. Any proposals not received or postmarked by the due date will not be considered and will be returned to the applicant without review.

Important: All applicants, including those submitting both electronic and paper applications, should be aware that adequate time must be factored into applicant schedules for delivery of the application. Applicants submitting electronic applications are advised that volume on Grants.gov is currently heavy, 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.

4. Executive Order 12372 (Intergovernmental Review of Federal Programs)

Proposals under this program are not subject to Executive Order 12372, "Intergovernmental Review of Federal Programs."

5. Other Submission Requirements

Proposals may be submitted in hard copy or in electronic format as follows:

Paper submission:

National Institute of Standards and Technology
Manufacturing Extension Partnership
c/o Tony Gomez
100 Bureau Drive, Stop 4800
Gaithersburg, MD 20899-4800

Plainly mark on the outside of the package that it contains a Manufacturing Extension Partnership proposal.

For paper submissions, NIST requires an original and two (2) copies.

Electronic submission: Electronic proposals should be uploaded to www.grants.gov.

The following forms are available as part of the Grants.gov application kit and can be completed through the download application process.

- SF-424, Application for Federal Assistance
- SF-424A, Budget Information Non-Constructions
- SF-424B, Assurances Non-Construction
- CD-511, Certification Regarding Debarment, Suspension and Other Responsibility Matters; Drug-Free Workplace Requirements and Lobbying
- SF-LLL, Disclosure of Lobbying Activities (if applicable).

The list of certifications and assurances referenced in item number 21 of the SF-424 is contained in the SF-424B.

In order for an application to be considered complete, it must meet all the application documentation requirements stated in the Federal Funding Opportunity notice.

Applicants may choose to scan or create the necessary documents and then attach them to the application in Grants.gov. Applicants 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 a proposal is received does not provide information about whether attachments have been received.

If you have a question regarding successful transfer of attachments or questions regarding applying electronically for the 2011-NIST-MEP-STATE-PARTNERSHIPS announcement, please contact Christopher Hunton at 301-975-5718, e-mail address christopher.hunton@nist.gov.

Applicants are strongly encouraged to start early and not to 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 from 3 to 5 business days. If problems are encountered, the registration process can take up to 2 weeks or more. Applicants must have a Dun and Bradstreet Data Universal Numbering System (DUNS) number and must be registered with the Federal Central Contractor Registry and with a Credential Provider, 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 at 800-518-4726 for immediate assistance. 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 with using the Grants.gov, you may also contact support@grants.gov.

Information essential to successful submission of applications on the Grants.gov system is detailed in the All About Grants, Applicant FAQs, and Submit Application FAQs sections on the www.grants.gov home page. Applicants should click on the Applicant Resources section found in red on the left side of the Grants.gov home page and pay close attention to the information found in these sections.

Please refer to important information in “Submission Dates and Times” above to help ensure your application is received on time. All questions and responses will be posted on the MEP website, www.mep.nist.gov.

Information Sessions: NIST MEP will hold an information session for organizations considering applying to this opportunity. The information session will be in the form of a free webinar to be held five business days after this FFO is published. Organizations wishing to participate in the webinar should consult the NIST MEP public website www.nist.gov/mep for more details and register for the session at the NIST MEP public website www.nist.gov/mep.

V. Application/Proposal Review Information

1. Criteria.

All qualified proposals will be evaluated based on the requirements outlined in this FFO. Note that the proposed activities will occur in the context of implementing NIST MEP’s Next Generation Strategy: Continuous Improvement, Technology Acceleration, Supplier Development, Sustainability and Workforce. The NIST MEP Next Generation Strategy can be found at www.mep.nist.gov.

The following criteria will be utilized by a review panel comprised of at least three individuals to evaluate and rate the proposals. Each proposal should address all three evaluation criteria. Proposals will be evaluated and rated on the basis of the following criteria listed in descending order of importance.

- 1) *Quality of proposed approach and demonstrated ability to deliver on proposed activities. (50 points)* Applicants will need to describe how they will meet the intended outcomes for this work and advance MEP program goals. Applicants should also describe their experience and expertise, analytical ability, and networks that will enable them to carry out their proposed strategies. Factors that may be considered include: relevance of proposed activities to achieving program goals, demonstrated understanding of key issues facing state leaders relevant to the proposed project; creativity in proposed strategies to achieve intended outcomes, including nationwide coverage; and access to information, data, and market intelligence to inform strategies.
- 2) *Management and organizational experience and plans. (35 points)* Applicants should specify plans for effective organization, staffing, and management of the activities to be delivered under this award to advance MEP program goals. Factors that may be considered include: appropriateness and authority of the governing or managing organization to design and

implement the proposed activities; qualifications of the project team and its leadership to conduct the proposed activity; soundness of staffing plans, including recruitment, selection, training, and continuing professional development; well-defined roles and responsibilities among lead organization and any sub-recipients or partners; and appropriateness of the organizational approach for carrying out the proposed activity.

- 3) *Financial plan. (15 points)* Applicants should show the relevance and cost effectiveness of the financial plan for meeting the objectives of the project and to advance MEP program goals. Factors that may be considered include: reasonableness of the budget, both in income and expenses; strength of commitment to this work; and effectiveness of management plans for control of budget.

2. Selection Factors

The Selecting Official anticipates recommending proposals for funding in rank order of scores based on the criteria listed above unless a proposal is justified to be awarded out of rank order based on one or more of the following selection factors:

1. Availability of Federal funds.
2. Whether this project duplicates other projects funded by the Department of Commerce or other Federal agencies.

3. Review and Selection Process

Proposal evaluation and selection will consist of three principal phases: proposal qualification, proposal review, and award determination.

a. Proposal Qualification

All proposals will be reviewed by NIST to assure compliance with the proposal content as described in this notice. Proposals that satisfy these requirements will be designated as qualified proposals. Non-qualified proposals will not be evaluated and applicants will be notified of disqualification.

b. Proposal Review

NIST will appoint an evaluation panel comprised of at least three individuals to review and evaluate all complete proposals in accordance with the evaluation criteria set forth in this FFO. The evaluation panel will consist of NIST employees and in some cases other federal employees or non-federal experts who sign non-disclosure agreements. If non-federal experts are used, all reviewers will provide individual scores and no consensus advice will be given by the panel.

Each member of the panel will review all qualified proposals against the evaluation criteria. Based upon this review, each reviewer will assign a numeric score for each qualified proposal based on the evaluation criteria. The reviewers may discuss the proposal with each other, but scores will be determined on an individual basis, not as a consensus. Proposals with an average score of 70 or higher out of 100 will be deemed finalists.

Proposals are then ranked based on the sum of the reviewers' final numeric scores. The ranked proposals are then submitted to the Selecting Official, the Director of the NIST MEP Program.

c. **Award Determination**

The Director of the NIST MEP Program shall make funding recommendations to NIST Grants Officer based on the rank order of applicants and the selection factors described above.

The final approval of selected applications and award of financial assistance will be made by the NIST Grants Officer based on compliance with application requirements as published in this notice, compliance with applicable legal and regulatory requirements, and whether the recommended applicants appear to be responsible. Applicants may be asked to modify objectives, work plans, or budgets and provide supplemental information required by the agency prior to award. As a result of the selection process, NIST may fund all, some, or parts of the eligible applications submitted, or none at all. The decision of the Grants Officer is final.

NIST may enter into negotiations with the finalist concerning any aspect of their proposal.

Unsuccessful applicants will be notified in writing. The Program will retain one copy of each unsuccessful application for three years for record keeping purposes. The remaining copies will be destroyed.

4. Additional Information

- a. Applicants may not submit replacement and/or revised pages and/or documents for any portion of a proposal once that portion has been submitted unless specifically requested by NIST.
- b. One copy of each incomplete, nonresponsive, non-qualified or non-selected proposal 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.

VI. Award Administration Information

1. Anticipated Announcement and Award Date.

NIST plans to make awards by **June 1, 2011**.

2. Award Notices.

The successful finalist will receive a cooperative agreement award document from the Grant Officer. The document will be mailed via surface mail in triplicate. The recipient must have an authorized official at the organization sign and return two copies to the address listed in the award document. The award document will also include the standard terms and conditions, general terms and conditions (if any), and special award conditions (if any) that are applicable.

To enable the use of a universal identifier and to enhance the quality of information available to the public as required by the Federal Funding Accountability and Transparency Act of 2006, to the extent applicable, any proposal awarded in response to this announcement will be required to use the Central Contractor Registration and Dun and Bradstreet Universal Numbering System and be subject to reporting requirements, as identified in OMB guidance published at 2 CFR Parts 25, 170 (2010),

http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title02/2cfr25_main_02.tpl,
http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title02/2cfr170_main_02.tpl

3. Administrative and National Policy Requirements.

The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative

Agreements: The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements, which are contained in the Federal Register Notice of February 11, 2008 (73 Fed. Reg. 7696), are applicable to this notice. (Please refer to www.gpoaccess.gov/fr/). On the form SF-424 items 8.b. and 8.c., the applicant's 9-digit Employer/Taxpayer Identification Number (EIN/TIN) and 9-digit Dun and Bradstreet Data Universal Numbering System (DUNS) number must be consistent with the information on the Central Contractor Registration (CCR) (www.ccr.gov) and Automated Standard Application for Payment System (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. An organization that provides incorrect/inconsistent EIN/TIN and DUNS numbers may experience significant delays in receiving funds if its proposal is selected for funding. Please confirm that the EIN/TIN and DUNS numbers are consistent with the information on the CCR and ASAP.

Funding Availability and Limitation of Liability: Funding for the program listed in this notice is contingent upon the availability of Fiscal Year 2011 appropriations. NIST issues this notice subject to the appropriations made available under the current continuing resolution funding the Department of Commerce, H.R 3082, "Continuing Appropriations and Surface Transportation Extensions Act, 2011," Public Law 111-322. NIST anticipates making awards for the program listed in this notice provided that funding for the program is continued beyond March 4, 2011, the expiration of the current continuing resolution. In no event will NIST or the Department of Commerce be responsible for proposal preparation costs if these programs fail to receive funding or are cancelled because of agency priorities. Publication of this announcement does not oblige NIST or the Department of Commerce to award any specific project or to obligate any available funds.

4. Reporting Requirements

Reporting requirements are described in the Department of Commerce Financial Assistance Standard Terms and Conditions dated March 2008, found on the Internet at:

<http://oam.eas.commerce.gov/docs/GRANTS/DOC%20STCsMAR08Rev.pdf> .

The references in Sections A.01 and B.01 of the Department of Commerce Financial Assistance Standard Terms and Conditions, dated March 2008 to "Financial Status Report (SF-269)" and "SF-269" are hereby replaced with the "Federal Financial Report (SF-425)" and "SF-425," respectively, as required by the Office of Management and Budget (OMB) (73 FR 61175, October 15, 2008). As authorized under 15 CFR §§ 14.52 and 24.41, the OMB-approved SF-425 shall be used in the place of the SF-269 and SF-272 under the uniform administrative requirements and elsewhere under awards in this program where such forms are referenced.

The Federal Funding Accountability and Transparency Act of 2006 includes a requirement for awardees of applicable Federal grants to report information about first-tier subawards and executive compensation under Federal assistance awards issued in FY 2011 or later. All awardees of applicable grants and cooperative agreements are required to report to the Federal Subaward Reporting System (FSRS) available at www.FSRS.gov on all subawards over \$25,000.

Technical Activity and Performance Reporting: Technical reports shall contain information as prescribed in 15 CFR Part 14.51.

Performance Reviews: Funding for each recipient is contingent upon positive program evaluations from Federal Program Officer assigned to award by MEP.

Automated Standardized Application for Payment System (ASAP): The Department of Commerce is using the Department of Treasury's ASAP. In order to receive payments for services under these awards, recipients will be required to register with the Department of Treasury and indicate whether or not they will use the on-line or voice response method of withdrawing funds from their ASAP established accounts. More information regarding ASAP can be found on-line at www.fms.treas.gov/asap/index.html.

VII. Agency Contact(s)

Questions should be directed to the following contact persons:

Subject Area	Point of Contact
Administrative, budget, eligibility questions, and other programmatic questions	Anthony Gomez Phone: 301-975-8139 Fax: 301-963-6556 E-mail: tgomez@nist.gov
Electronic Proposal submission	Christopher Hunton Phone: 301-975-5718 Fax: 301-840-5976 E-mail: christopher.hunton@nist.gov
Grant rules and regulations	Judy Murphy Grants & Agreements Management Division Phone: 301-975-5603 Fax: 301-926-6458 E-mail: judy.murphy@nist.gov