



NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

NSF 11-066

Dear Colleague Letter: NSF-NIST Interaction in Basic and Applied Scientific Research in BIO, ENG & MPS

The National Science Foundation (NSF) and National Institute of Standards and Technology (NIST) have shared interests in a variety of basic and applied scientific and engineering fields. This program is designed to facilitate collaborative research and educational activities between NIST scientific and engineering staff and researchers supported by NSF. Support may be requested through use of supplemental funding requests to existing NSF awards for travel expenses and per diem associated with work on-site at NIST for NSF-supported PIs, co-PIs, post-doctoral scholars, undergraduate and graduate students and other personnel associated with the NSF-NIST collaborative research.

Revision Notes

- The format for this funding opportunity has been changed to a Dear Colleague Letter from a solicitation (replacing [NSF 03-568](#)). The revised text reflects changes in the organizational structure at both NSF and NIST, and expands the participating groups at both organizations. New points of contact at both organizations are also provided.
- The term, Faculty, has been changed, to PI to broaden the participation to small businesses and non-profit organizations.
- The maximum supplement size has been increased from \$20,000 to \$25,000.

Introduction

This program provides supplements to NSF-supported researchers with active awards in the participating divisions (see below) within NSF's Biological Sciences, Engineering, and Mathematical and Physical Sciences Directorates for collaboration with researchers in the NIST Laboratories and User Facilities.

National Science Foundation

Directorate for Biological Sciences

Division of Molecular and Cellular Biosciences (MCB): <https://www.nsf.gov/div/index.jsp?div=MCB>

Directorate for Engineering

Division of Chemical, Bioengineering, Environmental, and Transport Systems (CBET): <https://www.nsf.gov/div/index.jsp?div=CBET>

Division of Civil, Mechanical and Manufacturing Innovation (CMMI): <https://www.nsf.gov/div/index.jsp?div=CMMI>

Division of Electrical, Communications and Cyber Systems (ECCS): <https://www.nsf.gov/div/index.jsp?div=ECCS>

Engineering Education and Centers (EEC): <https://www.nsf.gov/div/index.jsp?div=EEC>

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Division of Industrial Innovation and Partnerships (IIP): <https://www.nsf.gov/div/index.jsp?div=IIP>

Directorate for Mathematical & Physical Sciences

Division of Chemistry (CHE): <https://www.nsf.gov/div/index.jsp?div=CHE>

Division of Materials Research (DMR): <https://www.nsf.gov/div/index.jsp?div=DMR>

Division of Mathematical Sciences (DMS): <https://www.nsf.gov/div/index.jsp?div=DMS>

General inquiries regarding this program may be made to:

Name	Email	Phone	Room
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Dr. Deborah J. Jackson	djackson@nsf.gov	(703) 292-7499	585
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Dr. Timothy Patten	tpatten@nsf.gov	(703) 292-7196	1055
Dr. Henry A. Warchall	hwarchal@nsf.gov	(703) 292-4861	1025

Specific questions may be directed to the cognizant Program Director for your current award. Before writing a supplemental funding request, PIs should consult the cognizant Program Director for their current award to explore program priorities and interests.

National Institute of Standards and Technology

The NIST Laboratories (<http://www.nist.gov/index.html>) are the Engineering Laboratory (EL), the Information Technology Laboratory (ITL), the Material Measurement Laboratory (MML), and the Physical Measurement Laboratory (PML), and the User Facilities are the Center for Nanoscale Science and Technology (CNST) and the NIST Center for Neutron Research (NCNR). Founded in 1901, NIST is a non-regulatory federal agency within the U.S. Department of Commerce. NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards and technology in ways that enhance economic security and improve our quality of life. The Laboratories and User Facilities conduct research that advances the nation's technology infrastructure and is needed by U.S. industry to continually improve products and services. The agency operates in two locations: Gaithersburg, Maryland (headquarters) and Boulder, Colorado. NIST employs about 2,900 scientists, engineers, technicians and support and administrative personnel, and hosts about 2,600 associates and facility users from academia, industry and other government agencies.

The Engineering Laboratory (<http://www.nist.gov/el>) promotes the development and dissemination of advanced technologies, guidelines, and services to the U.S. manufacturing and construction industries through activities including measurement science research, performance metrics, tools and methodologies for engineering applications, and critical technical contributions to standards and codes development.

The Information Technology Laboratory (<http://www.nist.gov/itl>) has the broad mission of supporting U.S. industry, government, and academia by promoting U.S. innovation and industrial competitiveness through advancement of information technology measurement science, standards, and technology in ways that enhance economic security and improve our quality of life. Information technology is the

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acknowledged engine for national and regional economic growth. ITL researchers have developed detailed protocols and operational standards that mitigate anticipated discrepancies in their operation, and established assessment criteria and test data sets for validation of industrial products. Within NIST's traditional role as the overseer of the National Measurement System, ITL is addressing the hard problems in IT Measurement Research. ITL formulates metrics, tests, and tools for a wide range of subjects such as information complexity and comprehension, high confidence software, space-time coordinated mobile and wireless computing, as well m as, issues of information quality, integrity, and usability. Under the Federal Information Security Management Act, ITL is charged to develop cybersecurity standards, guidelines, and associated methods and techniques. Charged under other legislation, such as the USA PATRIOT Act and the Help America Vote Act, ITL is addressing the major challenges faced by the nation in the areas of homeland security and electronic voting.

The Material Measurement Laboratory (<http://www.nist.gov/mml>) serves as the national reference laboratory for measurements in the chemical, biological and material sciences. MML's activities range from fundamental and applied research on the composition, structure and properties of industrial, biological and environmental materials and processes, to the development and dissemination of tools including reference measurement procedures, certified reference materials, critically evaluated data, and best practice guides that help assure measurement quality. Our research and measurement services support areas of national importance, such as advanced materials, electronics, energy, the environment, food safety and nutrition, health care, infrastructure, manufacturing, and safety, security, and forensics. The MML also coordinates the NIST-wide Standard Reference Materials (RM) and Standard Reference Data programs, which include production, documentation, inventory, marketing, distribution and customer service. To provide relevant measurement services, the MML conducts research in analytical chemistry, biochemical science, ceramics, chemical and biochemical reference data, materials reliability, metallurgy, polymers, surface and microanalysis science, and the thermophysical properties of materials.

The Physical Measurement Laboratory (<http://www.nist.gov/pml>) develops and disseminates the national standards of length, mass, force and shock, acceleration, time and frequency, electricity, temperature, humidity, pressure and vacuum, liquid and gas flow, and electromagnetic, optical, microwave, acoustic, ultrasonic, and ionizing radiation. Its activities range from fundamental measurement research through provision of measurement services, standards, and data. PML applies its measurement capabilities to problems of national significance through collaborations with industry, universities, professional and standards setting organizations, and other agencies of government. It supports the research community in such areas as communication, defense, electronics, energy, environment, health, lighting, manufacturing, microelectronics, radiation, remote sensing, space, and transportation. PML establishes spectroscopic methods and standards for infrared, visible, ultraviolet, x-ray, and gamma-ray radiation; investigates the structure and dynamics of atoms, molecules, and biomolecules; develops the electrical, thermal, dimensional, mechanical, and physical metrology for measuring the properties of precision measurement devices and exploratory semiconductor, quantum electronic, nanoelectronic, bioelectronic, biooptical, optoelectronic, and quantum information devices and systems; and examines the thermophysical and interfacial properties of streams of flowing fluids, fluid mixtures, and solids. It develops and disseminates national standards by means of calibrations, measurement quality assurance, standard reference materials, technology transfer, education/training, and a comprehensive weights and measurement program to promote uniformity and accuracy at the international, federal, state, and local levels. It generates, evaluates, and compiles atomic, molecular, optical, ionizing radiation, electronic, and electromagnetic data in response to national needs; measures and improves accuracy of the fundamental physical constants; and develops and operates major radiation sources for measurement science and metrology.

The NIST Center for Nanoscale Science and Technology (<http://www.nist.gov/cnst>) supports the U.S. nanotechnology enterprise from discovery to production by providing industry, academia, NIST, and

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other government agencies with access to world-class nanoscale measurement and fabrication methods and technology. The CNST is the only national nanocenter with a focus on commerce. The CNST's shared-use NanoFab gives researchers economical access to and training on a state-of-the-art tool set required for cutting-edge nanotechnology development. The simple application process is designed to get projects started in a few weeks. Looking beyond the current state of the art, CNST research is creating the next generation of nanoscale measurement instruments and methods, which are made available through collaboration. Based on the collective input of our stakeholders regarding the key measurement barriers to advancing nanotechnology towards production, and the current capabilities and needs of NIST's four Laboratories, we are currently emphasizing measurement research in support of three areas: future electronics; nanofabrication and nanomanufacturing; and nano-enabled energy storage, transport, and conversion.

The Center for Neutron Research (<http://www.nist.gov/ncnr>) provides neutron measurement capabilities to the U.S. research community. It is a national center for research using thermal and cold neutrons, offering its instrumentation for use by all qualified applicants. Many of its instruments rely on intense beams of cold neutrons emanating from an advanced liquid hydrogen moderator. The NCNR mission is threefold: to operate the NCNR safely as a cost-effective national resource; to conduct a broad program of research using neutron techniques, and to develop and apply new neutron measurement techniques; and to operate the NCNR as a national resource for researchers from industry, university, and other government agencies.

For more information about the participating NIST laboratories contact: Jason Boehm, Director, Program Coordination Office, NIST headquarters, telephone: (301) 975- 8678, e-mail: jason.boehm@nist.gov

Preparation and Submission of Supplemental funding Requests

Only PIs on current NSF awards from the participating divisions noted above are eligible to submit supplemental funding requests. These requests must include a description of the proposed work including a brief scientific or engineering justification, a budget for the requested funds and additional information about the collaboration described below. The supplemental funding request may only include travel and per diem costs associated with collaborative work at NIST. Support may be requested for any NSF-supported project participants (PIs, co-PIs, post-doctoral scholar, undergraduate and graduate students, and other personnel) associated with the joint NSF-NIST activity, but NSF funds will not be provided for NIST employees. Indirect costs may only be charged in accordance with the organization's indirect cost rate agreement. Supplemental funding requests must not exceed \$25,000.

The details of the proposed collaboration should be discussed in advance with NIST and described in the submitted supplemental proposal in *the Special Information and Supplemental Documentation* section. This brief description should list the full name/s and contact information of the proposed NIST collaborator/s, the nature of the collaboration, and the measurement instrumentation that will be used as part of the collaboration.

Before submitting a supplement request to this program, PIs are strongly encouraged to consult the Program Director for their current award. Supplemental funding requests may be submitted at any time; there is no fixed deadline date. Requests are submitted through the FastLane *Award and Reporting* module (<http://www.fastlane.nsf.gov/>). Please mention this Dear Colleague Letter number (NSF 11-066) in the *Summary* section of the supplemental funding request. The FastLane Help Desk (telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov) answers general technical questions related to the use of the FastLane system. When contacting FastLane, inform the technician that you are required to apply for this opportunity as a supplement.

Supplemental funding requests received by NSF will be reviewed if they comply with the preparation instructions specified in this Dear Colleague Letter. Proposals submitted in response to this Dear Colleague Letter will normally be reviewed internally at NSF; however, the cognizant Program Director may elect to use *ad hoc* mail review and/or panel review. For cases where the supplemental request/s from the initial award exceeds 20%, external review must be used. After scientific, technical and programmatic review and consideration of appropriate factors, the Program Director will formulate a funding recommendation. In all cases, after programmatic approval has been obtained, the supplemental funding action recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of the supplement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Director. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Sincerely,

Dr. Joann P. Roskoski
Assistant Director (Acting)
Biological Sciences

Dr. Thomas W.
Peterson
Assistant Director
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Dr. H. Edward Seidel
Assistant Director
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