

Applications are now being accepted for two new NIST Precision Measurement Grants to be awarded beginning October 1, 2020. Each grant is in the amount of \$50,000 per year, renewable for up to two more years, for a total of up to \$150,000. Candidates' abbreviated proposals must reach NIST by February 7, 2020 to be considered for these awards

National Institute of Standards and Technology

PRECISION MEASUREMENT GRANTS

Background: Since 1970, the National Institute of Standards and Technology (NIST) has awarded Precision Measurement Grants to faculty members of U.S. universities or colleges for significant research in the field of fundamental measurement or the determination of fundamental constants.

NIST sponsors these grants to encourage basic, measurement-related research in universities and colleges and other research laboratories and to foster contacts between NIST scientists and those faculty members of academic institutions and other researchers who are actively engaged in such work. The Precision Measurement Grants are also intended to make it possible for researchers to pursue new ideas for which other sources of support may be difficult to find.

If funding is available, two new grants in the amount of \$50,000 per year will be awarded for the initial period of October 1, 2019 through September 30, 2020. Each award may be continued for up to two additional years; however, future or continued funding will be at the discretion of NIST based on satisfactory performance, continuing relevance to program objectives, and the availability of funds.

Research topics/who may apply: There is some latitude in research topics that will be considered under the Precision Measurement Grants Program. The key requirement is that the proposed project support NIST's ongoing work in the field of basic measurement science, which includes:

- Experimental and theoretical studies of fundamental physical phenomena which test the basic laws of physics or which may lead to new or improved fundamental measurement methods and standards.
- The determination of important fundamental physical constants.

Proposals from workers at the assistant or associate professor level who have some record of accomplishment are especially

encouraged in view of the comparative difficulty researchers have in obtaining funds at the early stages of their careers. Typical projects that have been funded through the NIST Precision Measurement Grants Program include:

Precision optical spectroscopy of positronium, S. Chu, Stanford University.

Spectroscopy of francium: towards a precise parity nonconservation measurement in a laser trap, L. A. Orozco, State University of New York at Stony Brook.

Measurement of Newton's constant G using a new method, J. H. Gundlach, University of Washington.

Measurement of the polarization of the cosmic microwave background, S. T. Staggs, Princeton University.

Combining the quantum Hall and AC Josephson effects for electric current metrology, E. A. Gwinn, University of California, Santa Barbara.

A test of CPT symmetry using a new K^- ^3He self-compensating magnetometer, M. V. Romalis, Princeton University

Application Procedure:

Application requirements and details are determined by the Notice of Funding Opportunity which will be assessable at <http://physics.nist.gov/pmg> when it is posted.

Applicants will initially submit abbreviated proposals, containing a description of the proposed project, including sufficient information to address the evaluation criteria, with a total length of no more than five (5) double-spaced pages.

A completed SF-424 form is required to be submitted with the abbreviated proposal. Abbreviated proposals may be submitted by email to pmg@nist.gov. The SF-424 form can be found at <http://physics.nist.gov/pmg>.

Approximately eight individuals, four within NIST and four outside of

NIST, knowledgeable about the scientific areas that the program addresses will conduct a technical review of each proposal, based on the evaluation criteria described below. The proposals will then be ranked by the average of the reviewers' rankings. Four to eight finalists will be selected based on the results of the reviewers' evaluations, including rank, and relevance to the program objectives described above.

The finalists will then be asked to submit full proposals containing a description of the proposed project, including sufficient information to address the evaluation criteria, with a total length of no more than ten (10) double-spaced pages, in addition to the federally mandated forms and certifications, through Grants.gov. The same reviewers will evaluate the detailed proposals based on the same evaluation criteria. Two proposals will be selected for funding by the end of fiscal year 2020, based on the results of the reviewers' evaluations, including rank, and relevance to the program objectives described above.

Evaluation criteria:

1. The importance of the proposed research
 - What is its potential for answering some currently pressing question or of opening up a whole new area of activity?
2. The relationship of the proposed research to NIST's ongoing work
 - How well does it support one of NIST's current efforts to develop a new or improved fundamental measurement method or physical standard, test the basic laws of physics, or provide an improved value for a fundamental constant? (See <http://pml.nist.gov>)
3. The feasibility of the research and the potential impact of the grant
 - How likely is it that significant progress can be made in a three-year time period with the funds and personnel available and that the funding will enable work that would otherwise not be done?

4. The qualifications of the applicant
 - How strongly do the educational and employment background and the quality of the research, based on recent publications, of the applicant indicate that there is a high probability that the proposed research will be carried out successfully?

Each of these factors is given equal weight in the evaluation process.

Submitting Proposals:

Abbreviated proposals may be sent by email to pmg@nist.gov.

Questions concerning the NIST Precision Measurement Grants Program may be directed to Joseph Tan at joseph.tan@nist.gov or 301-975-8985.

Dates: Applicants for the Precision Measurement Grants Program must submit an abbreviated proposal for preliminary screening. Based on the merit of the abbreviated proposal, applicants will be advised whether a full proposal should be submitted. The abbreviated proposals must be received no later than 5:00 p.m. EST, February 7, 2020. Proposals received after this deadline will be returned with no further consideration. The finalists will be selected by March 17, 2019 and will be requested to submit full proposals to NIST no later than 11:59 p.m. EST on May 21, 2020. NIST expects to issue awards on or before September 30, 2020.

Web: physics.nist.gov/pmg

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