

**NOTICE OF FUNDING OPPORTUNITY (NOFO)
Precision Measurement Grant Program (PMGP)**

EXECUTIVE SUMMARY

- **Federal Agency Name:** National Institute of Standards and Technology (NIST), United States Department of Commerce (DoC)
- **Funding Opportunity Title:** Precision Measurement Grant Program (PMGP)
- **Announcement Type:** Initial
- **Funding Opportunity Number:** 2022-NIST-PMGP-01
- **Assistance Listing (CFDA Number):** 11.609, Measurement and Engineering Research and Standards
- **Dates:**
 - (1) Abbreviated Applications must be received by e-mail no later than 5:00 p.m. Eastern Time on Friday, February 4, 2022 (see Section IV.2.a of this NOFO). Abbreviated Applications received after this deadline will not be reviewed or considered.
 - (2) Review of Abbreviated Applications and selection of finalists who will be invited to submit a Full Application is expected to be completed by Wednesday, March 16, 2022.
 - (3) Full Applications from selected finalists must be received electronically through Grants.gov no later than 11:59 p.m. Eastern Time, on Thursday, May 19, 2022. Full applications received after this deadline will not be reviewed or considered. Paper applications will not be accepted.

Applicants should be aware, and factor in their application submission planning, that the Grants.gov system closes periodically for routine maintenance. Applicants should visit [Grants.gov](https://www.grants.gov) for information on any scheduled closures. Applications cannot be submitted when Grants.gov is closed.

NIST expects to complete its review, selection of successful applicants, and award processing by September 2022. NIST expects the earliest start date for awards under this NOFO to be October 1, 2022.

Applicants submitting Full Applications are strongly urged to read Section IV.2.c., Attachment of Required Full Application Documents, of this NOFO with

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great attention. Applicants should carefully follow the instructions and recommendations regarding attachments and use the Download Submitted Forms and Applications feature on www.Grants.gov to check that all required attachments were contained in their submission. Applications submitted without the required documents will not pass the Initial Administrative Review, described in Section V.3.a. of this NOFO.

- **Application Submission Address:** Abbreviated applications must be submitted by email to pmg@nist.gov. Full applications must be submitted using Grants.gov.
- **Funding Opportunity Description:** The PMGP is seeking applications from eligible applicants to support significant research in the field of fundamental measurement or the determination of fundamental constants.
- **Anticipated Amounts:** In Fiscal Year 2022 (FY22), NIST anticipates funding at most two (2) awards for a total of \$100,000 to fund the first year of the new awards. Subject to the Multi-Year Funding Policy described in Section II.2. of this NOFO, the new awards will be supported up to \$50,000 per year with project performance periods of up to three (3) years, for a total of up to \$150,000 per award.
- **Funding Instrument:** Grant
- **Eligibility:** Eligibility for the program listed in this NOFO is open to all non-Federal entities. Eligible applicants include accredited institutions of higher education; non-profit organizations; for-profit organizations incorporated in the United States; state, local, territorial, and Indian tribal governments; foreign public entities; and foreign organizations. Please note that individuals and unincorporated sole proprietors are not considered “non-Federal entities” and are not eligible to apply under this NOFO. Although Federal entities are not eligible to receive funding under this NOFO, they may participate as unfunded collaborators.
- **Cost Sharing Requirements:** Non-federal cost share is not required for awards issued pursuant to this NOFO.
- **Public Website:** NIST PMGP has a public website, www.physics.nist.gov/pmg, that provides information pertaining to this Funding Opportunity. Any amendments to this NOFO will be announced through Grants.gov.

Applicants must submit all questions pertaining to this funding opportunity in writing via e-mail to pmg@nist.gov with “2022 NIST PMGP” in the subject line.

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FULL ANNOUNCEMENT TEXT

I. Program Description

The statutory authority for the NIST PMGP is 15 U.S.C. § 272(b)(2), (b)(4), (b)(6), (b)(7), (b)(8), (c)(1), (c)(3), (c)(10), (c)(11), and (c)(18).

Background Information

The PMGP was started in 1970 to support research in the field of fundamental measurement or the determination of fundamental constants, enabling the faculties at universities and colleges and laboratory researchers to conduct significant research in this area. By funding the research projects of eligible applicants through this program, NIST supports advances in fundamental measurement, the determination of fundamental constants, and fosters extramural collaboration with NIST scientists. The PMGP also is intended to make it possible for researchers to pursue new ideas for which other sources of support may be difficult to find. There is some latitude in research topics that will be considered under the PMGP.

Proposals will be evaluated based upon the criteria indicated in Section V.1, which includes the relationship of the proposed research to NIST's ongoing effort to develop improved fundamental measurement methods or standards, test the basic laws of physics, or provide an improved value for a fundamental constant. See <http://pml.nist.gov> for more information about NIST's programs in these areas.

II. Federal Award Information

1. Funding Instrument

The funding instrument that will be used is a grant or a cooperative agreement. If a cooperative agreement between NIST and the awardee is

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included, the nature of NIST’s “substantial involvement” will generally include collaboration with the recipient’s organization in developing and implementing the approved scope of work.

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 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 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 PMGP, and the availability of funds. Under this NOFO, NIST may elect to fully fund awards or to fund awards incrementally, in accordance with the Multi-Year Funding policy.

3. Funding Availability

In FY2022, NIST anticipates the availability of funds to support at most two (2) new projects. Subject to the Multi-Year Funding Policy indicated above (Section II.2 of this NOFO), the new awards shall be supported up to \$50,000 per year with project performance periods of up to three (3) years, for a total of up to \$150,000 per award. In FY2022, funding for the first year of awards is anticipated to total up to approximately \$100,000.

III. Eligibility Information

1. Eligible Applicants: Eligibility for all programs listed in this NOFO is open to all non-Federal entities. Eligible applicants include accredited institutions of higher education, non-profit organizations, for-profit organizations, state and local governments, Indian tribes, hospitals, foreign public entities, foreign governments, international organizations, and Federal agencies with appropriate legal authority. Please note that individuals and unincorporated sole proprietors are not considered “non-Federal entities” and are not eligible to apply under this NOFO. Although Federal entities are not eligible to receive funding under this NOFO, they may participate as unfunded collaborators.

2. Cost Sharing or Matching: Cost sharing or matching funds are not required.

IV. Application and Submission Information

1. Address to Request Application Package

The Abbreviated Application form for initial review is the Form SF-424 (R&R) Application for Federal Assistance, which is downloadable from [Grants.gov](https://www.grants.gov) by

clicking the 'FORMS' tab, then the R&R Family link and scrolling down to the SF424 (R & R) document.

Only the finalists selected in the above-mentioned initial review will be invited to submit Full Applications, for which the application package will be made available at Grants.gov under Funding Opportunity Number 2022-NIST-PMGP-01. Full Applications for the PMGP may only be submitted in response to an invitation from NIST.

2. Content and Form of Application Submission

a. Required Abbreviated Application Forms and Documents.

Abbreviated Applications must be submitted under the PMGP in order to be considered for funding (see Section IV.4.a. of this NOFO). The Abbreviated Applications for initial review must contain the following:

- (1) SF-424 (R&R), Application for Federal Assistance.** The SF-424 (R&R) must be signed by an authorized representative of the applicant organization.

For SF-424 (R&R), Items 5, 14, and 19, use the Zip Code + 4 format (##### - ####) when addresses are called for.

The list of certifications and assurances referenced in Item 17 of the SF-424 (R&R) is contained in the Federal Financial Assistance Certifications and Representations (Certs and Reps) as part of the SAM.gov entity registration.

Instructions for filling in the SF-424 (R&R) can be found in the 2022-NIST-PMGP-01 Application Instructions document found on Grants.gov, as well as in the NIST Grants Management Division [SF-424 Research & Related \(R&R\) Application Package Guidance](#).

- (2) Abbreviated Application Narrative.** A word-processed document written by the applicant of no more than five (5) double-spaced pages describing the proposed project that includes sufficient information to address the evaluation criteria (see Section V.1. of this NOFO).

b. Required Full Application Forms and Documents. Finalists selected in the initial review will be invited to submit Full Applications.

It is anticipated that four (4) to six (6) applicants who submitted Abbreviated Applications will be selected by NIST as finalists and

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requested to submit a Full Application for the PMGP. Only applicants who have been selected by NIST as finalists and are requested to submit a Full Application are permitted to submit Full Applications (see Section IV.7.b of this NOFO). The Full Application must contain the following:

(1) SF-424 (R&R), Application for Federal Assistance. The SF-424 (R&R) must be signed by an authorized representative of the applicant organization.

For SF-424 (R&R), Items 5, 14, and 19, use the Zip Code + 4 format (##### - ####) when addresses are called for.

The list of certifications and assurances referenced in Item 17 of the SF-424 (R&R) is contained in the Federal Financial Assistance Certifications and Representations (Certs and Reprs) as part of the SAM.gov entity registration.

SF-424 (R&R), Item 18. If the SF-LLL, Disclosure of Lobbying Activities form (item (5) below) is applicable, attach it to field 18.

Instructions for filling in the SF-424 (R&R) can be found on Grants.gov, as well as at the NIST Grants Office [SF-424 Research & Related \(R&R\) Application Package Guidance](#).

(2) Research & Related Budget (Total Fed + Non-Fed). The budget should reflect anticipated expenses for the full term of the project, considering all potential cost increases, including cost of living adjustments.

The budget should be detailed in these categories:

- A. Senior/Key Person;
- B. Other Personnel;
- C. Equipment Description;
- D. Travel;
- E. Participant/Trainee Support Costs
- F. Other Direct Costs;
- G. Direct Costs (automatically generated);
- H. Indirect Costs;
- I. Total Direct and Indirect Costs (automatically generated);
- J. Fee (not relevant to this competition);
- K. Total Costs and Fee (automatically generated);
- L. Budget Narrative and Justification document (item (7) below) should be attached to field L.

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A separate detailed R&R Budget must be completed for each budget period during the proposed award (e.g., annual basis). To add additional budget periods (e.g., year 2), click “Add Period” embedded at the end of the form. Information regarding the Research & Related Budget (Total Fed + Non-Fed) is available in the [R&R Family Section](#) of Grants.gov, as well as at the NIST Grants Management Division [SF-424 Research & Related \(R&R\) Application Package Guidance](#).

(3) CD-511, Certification Regarding Lobbying. Enter “2022-NIST-PMGP-01” in the Award Number field. Enter the title of the application, or an abbreviation of that title, in the Project Name field.

(4) Research and Related Other Project Information. Answer the highlighted questions and use this form to attach the Project Narrative (item (6) below), the Indirect Cost Rate Agreement (item (8) below), the Data Management Plan (item (10) below), and the Current and Pending Support Form (item (11) below). Instructions for completing the Research and Related Other Project Information form can be found in [the Grants.gov R&R Forms Repository](#) by scrolling down to Research And Related Other Project Information and clicking the Instructions link, as well as in the NIST Grants Management Division [SF-424 Research & Related \(R&R\) Application Package Guidance](#).

Please note that the Project Summary/Abstract is not relevant to this competition. However, Grants.gov requires an attachment to field 7 of the Research and Related Other Project Information form to successfully pass through Grants.gov. Please attach a document to field 7 stating, “A Project Summary/Abstract is not relevant to this competition”.

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

(6) Project Narrative. The Project Narrative is a word-processed document of no more than ten (10) pages (double-spaced between lines), which is responsive to the program description (see Section I. of this NOFO) and the evaluation criteria (see Section V.1. of this NOFO).

The projective narrative should contain the following information:

a. **Abstract.** Provide a concise title and a 100-200 word abstract highlighting the motivation, the nature of the project, and the level of precision targeted by the proposed measurement.

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- b. **Project Description.** Address each of the four (4) evaluation criteria (see Section V.1. of this NOFO). This section should provide a statement of the work which includes milestones towards the project objectives.
- c. **Curriculum Vitae (CV) of the Principal Investigator (PI).** Provide a CV of the principal investigator, including a list of his/her most recent publications relevant to the proposed work.
- d. **Current Support.** Indicate if your research is supported by other sources of funding and make clear how the NIST funds will enable the applicant to engage in work that otherwise could not be done with only the other source(s) of funds. Please note the terms and limitations indicated in Section II. of this NOFO.

(7) Budget Narrative and Justification.

There is no set format for the Budget Narrative and Justification, however, the written justification should include the necessity and the basis for the cost, as described below. Proposed funding levels must be consistent with the project scope, and only allowable costs should be included in the budget. Information on cost allowability is available in the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 C.F.R. Part 200 (<http://go.usa.gov/SBYh>), which apply to awards in this program.

This section will be evaluated in accordance with the evaluation criterion found at Section V.1.c. of this NOFO, “The feasibility of the research and the potential impact of the project/award”. It will also be reviewed to determine if all costs are reasonable, allocable, and allowable under 2 C.F.R. Part 200 Subpart E, Cost Principles.

Information needed for each category is as follows (categories not listed are automatically generated by the form or are not relevant to this competition):

- A. Senior/Key Person** – At a minimum, the budget justification should include the following: name, job title, commitment of effort on the proposed project in terms of average number of hours per week or percentage of time, salary rate, total direct charges on the proposed project, description of the role of the individual on the proposed project and the work to be performed.

Fringe benefits should be identified separately from salaries and wages and based on rates determined by organizational policy. The items included in the fringe benefit rate (e.g., health insurance, parking, etc.) should not be charged under another cost category.

- B. Other Personnel** - Data is requested at the project role level, and not at the individual level for Other Personnel. The budget justification should include the following: job title, commitment of effort on the proposed project in terms of average number of hours per week or percentage of time, salary rate, total direct charges on the proposed project, description of the role of the position on the proposed project and the work to be performed.

Fringe benefits should be identified separately from salaries and wages and based on rates determined by organizational policy. The items included in the fringe benefit rate (e.g., health insurance, parking, etc.) should not be charged under another cost category.

- C. Equipment Description** – Equipment is defined as an item of property that has an acquisition cost of \$5,000 or more (unless the organization has established lower levels) and an expected service life of more than one year. The budget justification should list each piece of equipment, the cost, and a description of how it will be used and why it is necessary to the successful completion of the proposed project. Please note that any general use equipment (computers, etc.) charged directly to the award should be allocated to the award according to expected usage on the project.
- D. Travel** - For all travel costs, required by the recipient to complete the project, including attendance at any relevant conferences, the budget justification for travel should include the following: destination; names or number of people traveling; dates and/or duration; mode of transportation, lodging and subsistence rates; and description of how the travel is directly related to the proposed project. For travel that is yet to be determined, please provide best estimates based on prior experience. If a destination is not known, an approximate amount may be used with the assumptions given for the location of the meeting.
- E. Participant/Trainee Support Costs** – Participant support costs are stipends, subsistence allowances, travel, and registration fees paid to or on behalf of participants or trainees, who are not employees of your organization, for conferences or training projects. The budget justification should indicate the names or number of participants or Precision Measurement Grant Program (PMGP)

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trainees, a description and calculation of costs per person, a description and date of the event, and a description of why the cost is necessary for the successful completion of the proposed project.

- F. Other Direct Costs** – For costs that do not easily fit into the other cost categories, please list the cost, and the breakdown of the total costs by quantity or unit of cost. Include the necessity of the cost for the completion of the proposed project. Only allowable costs can be charged to the award.

Each subaward or contractual cost should be treated as a separate item in the Other Direct Costs category. Describe the services to be provided and the necessity of the subaward or contract to the successful performance of the proposed project. Contracts are for obtaining goods and services. Subawardees perform part of the project scope of work. For each subaward, applicants must provide budget detail justifying the cost of the work performed on the project.

- H. Indirect Costs** – Commonly referred to as Facilities & Administrative Costs, Indirect Costs are defined as costs incurred by the applicant organization that cannot otherwise be directly assigned or attributed to a specific project. For more details, see Section IV.2.b.(8) of this NOFO.

- (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 audit agency. If the rate was not established by a cognizant Federal audit 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 Section B.06 of the [Department of Commerce Financial Assistance Standard Terms and Conditions](#), dated November 12, 2020.

Alternatively, in accordance with 2 C.F.R. § 200.414(f), applicants that do not have a current negotiated (including provisional) indirect cost rate except for those non-Federal entities described in [appendix VII, paragraph D.1.b.](#) of 2 CFR 200 may elect to charge a de minimis rate of 10 percent of modified total direct costs (MTDC). Applicants proposing a 10 percent de minimis rate pursuant to 2 C.F.R. § 200.414(f) should note this election as part of the budget portion of the application. Please be aware that Foreign applicants will be limited to

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use of the de minimis rate and will not have the opportunity to negotiate an indirect cost rate with NIST.

- (9) Subaward Budget Form.** The Research & Related Subaward Budget Attachment Form is required if sub-recipients and contractors are included in the application budget.

Instructions for completing subaward budget forms are available by visiting the [R & R Family section](#) of the Grants.gov Forms Repository and scrolling down to the R & R Subaward Budget Attachment(s) Form and selecting “Instructions.”

- (10) Data Management Plan.** Consistent with NIST Policy 5700.00¹, *Managing Public Access to Results of Federally Funded Research*, and NIST Order 5701.00², *Managing Public Access to Results of Federally Funded Research*, applicants must include a Data Management Plan (DMP).

All applications for activities that will generate scientific data using NIST funding are required to adhere to a DMP or explain why data sharing and/or preservation are not within the scope of the project. For the purposes of the DMP, NIST adopted the definition of “research data” at 2 C.F.R. § 200.315(e)(3).

The DMP must include, at a minimum, a summary of proposed activities that are expected to generate data; a summary of the types of data expected to be generated by the identified activities; a plan for storage and maintenance of the data expected to be generated by the identified activities, including after the end of the award’s period of performance; and a plan describing whether and how data generated by the identified activities will be reviewed and made available to the public.

A template for the DMP, an example DMP, and the rubric against which the DMP will be evaluated for sufficiency is available at <https://www.nist.gov/open>. An applicant is not required to use the template as long as the DMP contains the required information.

If an application stands a reasonable chance of being funded and the DMP is determined during the review process to be insufficient,

¹ https://www.nist.gov/system/files/documents/2018/06/19/final_p_5700.pdf

² https://www.nist.gov/system/files/documents/2019/11/08/final_o_5701_ver_2.pdf

the program office may reach out to the applicant to resolve deficiencies in the DMP. If an award is issued prior to the deficiencies being fully rectified, the award will include a Specific Award Condition (SAC) stating that no research activities shall be initiated or costs incurred for those activities under the award until the NIST Grants Officer amends the award to indicate the SAC has been satisfied.

Reasonable costs for data preservation and access may be included in the application.

(11) Current and Pending Support Form. Any application that includes investigators, researchers, and key personnel must identify all sources of current and potential funding, including this proposal. Any current project support (e.g., Federal, state, local, public or private foundations, etc.) must be listed on this form. The proposed project and all other projects or activities requiring a portion of time of the Principal Investigator (PI), co-PI, and key personnel must be included, even if no salary support is received. The total award amount for the entire award period covered, including indirect costs, must be shown as well as the number of person-months per year to be devoted to the project, regardless of the source of support. Similar information must be provided for all proposals already submitted or that are being submitted concurrently to other potential funders.

Applicants must complete the Current and Pending Support Form, using multiple forms as necessary to account for all activity for each individual identified in the PI, co-PI and key personnel roles. A separate form should be used for each identified individual.

Applicants must download the Current and Pending Support Form from the NIST website at <https://www.nist.gov/oaam/grants-management-division/current-and-pending-support> and reference the guidance provided as it contains information to assist with accurately completing the form.

c. Attachment of Required Full Application Documents

Items IV.2.a.(1) through IV.2.a.(4) above are part of the standard application package in Grants.gov and can be completed through the download application process.

Item IV.2.a.(5), the SF-LLL, Disclosure of Lobbying Activities form, is an optional application form which is part of the standard application package in Grants.gov. If item IV.2.a.(5), the SF-LLL, Disclosure of Lobbying Activities form is applicable to this proposal, attach it to field

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18 of the SF-424 (R&R), Application for Federal Assistance.

Item IV.2.a.(6), the Project Narrative, should be attached to field 8 (Project Narrative) of the Research and Related Other Project Information form by clicking on “Add Attachment”.

Item IV.2.a.(7), the Budget Narrative and Justification, should be attached to field L (Budget Justification) of the Research and Related Budget (Total Fed + Total Non-Fed) form by clicking on “Add Attachment”.

Items IV.2.a.(8), the Indirect Cost Rate Agreement, IV.2.a.(10), the Data Management Plan, and IV.2.a.(11), the Current and Pending Support Form, must be completed and attached by clicking on “Add Attachments” found in item 12 (Other Attachments) of the Research and Related Other Project Information form.

Item IV.2.a.(9), the Subaward Budget Form(s), if applicable to the submission, should be attached to the Research & Related Subaward Budget (Total Fed + Non-Fed) Attachment(s) Form in the application package.

Following these directions will create zip files which permit transmittal of the documents electronically via 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 indicates only that an application was transferred to a system. It does not provide details concerning whether all attachments (or how many attachments) transferred successfully. Applicants will receive a series of e-mail messages over a period of up to two business days before learning whether a Federal agency’s electronic system has received its application.

Applicants are strongly advised to use Grants.gov’s “Download Submitted Forms and Applications” option to check that their application’s required attachments were contained in their submission.

After submitting the application, check the status of your application here: [CHECK APPLICATION STATUS](#) . If any, or all, of the required attachments are absent from the submission, follow the attachment directions found above, resubmit the application, and check again for the presence of the required attachments.

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If the directions found at <https://www.grants.gov/help/html/help/index.htm#t=GetStarted%2FGetStarted.htm> are not effective, please contact the Grants.gov Help Desk immediately. If calling from within the United States or from a U.S. territory, please call 800-518-4726. If calling from a place outside the United States or a U.S. territory, please call 606-545-5035. E-mails should be addressed to support@grants.gov. 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.

Applicants can track their submission in the Grants.gov system by following the procedures at the Grants.gov site (<http://go.usa.gov/cjamz>). It can take up to two business days for an application to fully move through the Grants.gov system to NIST. NIST uses the Tracking Numbers assigned by Grants.gov, and does not issue Agency Tracking Numbers.

d. Application Format

- (1) Email and Upload Submissions.** Abbreviated Applications for initial review are accepted only via email (see Section IV.7.a. under “Other Submission Requirements” in this NOFO). Full Applications from invited finalists are accepted only through www.Grants.gov and shall not be accepted via e-mail (see Section IV.7.b. under “Other Submission Requirements” in this NOFO).
- (2) Paper, Email, and Facsimile (fax) Submissions.** Will not be accepted.
- (3) Figures, Graphs, Images, and Pictures.** Should be of a size that is easily readable or viewable and may be displayed in landscape orientation. Any figures, graphs, images, or pictures will count toward the page limits for the Project Narrative.
- (4) Font.** Easy to read font (10-point minimum). Smaller type may be used in figures and tables but must be clearly legible.
- (5) Page Limit.** The Abbreviated Application Narrative is limited to five (5) pages double spaced. The Full Application Project Narrative is limited to ten (10) pages double spaced. In both cases, the Page limit includes: Table of contents (if provided), all required information including CVs, figures, tables, images, pictures, and references, as applicable.

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(6) Page Limit Exclusions:

SF-424 (R&R), Application for Federal Assistance;
Research & Related Budget (Total Fed + Non-Fed);
CD-511, Certification Regarding Lobbying;
Research and Related Other Project Information;
SF-LLL, Disclosure of Lobbying Activities;
Budget Narrative and Justification;
Indirect Cost Rate Agreement;
Subaward Budget Form;
Data Management Plan;
Current and Pending Support Form.

(7) Page Layout. The Project Narrative must be in portrait orientation.

(8) Page size. 21.6 centimeters by 27.9 centimeters (8 ½ inches by 11 inches).

(9) Page numbering. Number pages sequentially.

(10) Application language. English. All documents must be in English, including but not limited to the initial application, any additional documents submitted in response to a NIST request, all reports, and any correspondence with NIST.

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

e. 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.

f. Pre-Applications. The PMGP requires Abbreviated Applications (pre-applications), as detailed in Section IV.2.a. and IV.4.a. of this NOFO. The Selecting Official will select a group of finalists to submit Full Applications from among the Abbreviated Applications (see Section V.3. of this NOFO).

3. Unique Entity Identifier and System for Award Management (SAM).

Pursuant to 2 C.F.R. part 25, applicants and recipients are required to: (i) be registered in SAM before submitting its application; (ii) provide a valid unique entity identifier in its application; and (iii) continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal

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awarding agency, unless otherwise excepted from these requirements pursuant to 2 C.F.R. § 25.110. NIST will not make a Federal award to an applicant until the applicant has complied with all applicable unique entity identifier and SAM requirements and, if an applicant has not fully complied with the requirements by the time that NIST is ready to make a Federal award pursuant to this NOFO, NIST may determine that the applicant is not qualified to receive a Federal award and use that determination as a basis for making a Federal award to another applicant.

4. Submission Dates and Times

- a. Abbreviated Applications must be received by e-mail no later than 5:00 p.m. Eastern Time on Friday, February 4, 2022. Abbreviated Applications received after this deadline will not be reviewed or considered.
- b. Review of Abbreviated Applications and selection of finalists who will be invited to submit a Full Application is expected to be completed by Wednesday, March 16, 2022.
- c. Full Applications from selected finalists must be received electronically through Grants.gov no later than 11:59 p.m. Eastern Time, on Thursday, May 19, 2022. Full applications received after this deadline will not be reviewed or considered. Paper applications will not be accepted. NIST will consider the date and time recorded by Grants.gov as the official time that the application was received by NIST. **Applicants are cautioned that the validation process may take up to two full business days after the application is submitted to Grants.gov.**

NIST strongly recommends that applicants do not wait until the last minute to submit applications. NIST will not make allowance for any late submissions. The responsibility for ensuring a complete application is received by NIST by the deadline rests solely with the applicant. To avoid any potential processing backlogs due to last minute Grants.gov registrations, applicants are strongly encouraged to start their Grants.gov registration process at least four (4) weeks prior to the application due date.

Applicants should be aware, and factor in their application submission planning, that the Grants.gov system closes periodically for routine maintenance. Applicants should visit [Grants.gov](https://www.grants.gov) for information on any scheduled closures.

If you are invited to submit a Full Application, when developing the submission timeline, please keep in mind that: (1) all applicants are required to have current registrations in the electronic System for Award Management (SAM.gov) and Grants.gov; (2) the free annual registration process in the SAM.gov generally

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takes between three and five business days but can take more than three weeks; and applicants will receive e-mail notifications over a period of up to two business days as the application moves through intermediate systems before the applicant learns via a validation or rejection notification whether NIST has received the application. (See [Grants.gov](https://www.Grants.gov) for full information on application and notification through Grants.gov.) 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.

5. Intergovernmental Review

Applications under this Program are not subject to Executive Order 12372.

6. Funding Restrictions

Applications for product development and/or commercialization are not considered responsive to this NOFO. Profit or fee is not an allowable cost.

7. Other Submission Requirements

- a. **Abbreviated Applications.** Must be submitted via e-mail to pmg@nist.gov.
- b. **Full Applications by Finalists.** Applicants whose Abbreviated Proposals are selected as finalists will be invited by NIST to submit Full Applications, which must be submitted at www.Grants.gov.

Applicants should carefully follow specific Grants.gov instructions to ensure that all 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 2022-NIST-PMGP-01 announcement, contact the Grants.gov Help Desk at 800-518-4726.

- c. **Amendments.** Any amendments to this NOFO will be announced through Grants.gov. Applicants may sign up on Grants.gov to receive amendments by e-mail or may request copies by e-mail from pmg@nist.gov.

V. Application Review Information

1. Evaluation Criteria

The evaluation criteria that will be used in evaluating both Abbreviated Applications and Full Applications are as follows:

a. The importance of the proposed research—What is its potential for answering some current pressing question or of opening up a whole new area of activity?

b. The relationship of the proposed research to NIST’s ongoing work—How well does the proposed research support one of the following current efforts at NIST?

- (1) Developing a new or improved fundamental measurement method or physical standard;
- (2) Testing the basic laws of physics; or
- (3) Providing an improved value for a fundamental constant.

c. The feasibility of the research and the potential impact of the project/award – How likely is it that significant progress could be made in a three-year award period, with the funds and personnel available, and that the funding will enable work that would otherwise not be done?

d. The qualifications of the applicant – Considering the following factors, how strongly does the applicant’s qualifications indicate a high probability that the proposed research will be carried out successfully?

- (1) Principal Investigator’s (PI) educational and employment background; and
- (2) Quality of the PI’s research as reflected in recent publications.

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

2. Selection Factors

a. The Selection Factors for this competition are:

- (1) The availability of funding.
- (2) Whether the project duplicates other projects funded by NIST or other Federal agencies.
- (3) Relevance to the program objectives as stated in Section I. of this NOFO..

3. Review and Selection Process

Proposals, reports, documents and other information related to applications submitted to NIST and/or relating to financial assistance awards issued by NIST will be reviewed and considered by Federal employees, or non-Federal personnel who have entered into conflict of interest and confidentiality agreements covering such information, when applicable.

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a. Initial Administrative Review of Applications. Applications received by the deadline will be reviewed to determine eligibility, completeness, and responsiveness to this NOFO and to the scope of the stated program objectives. Applications determined to be ineligible, incomplete, and/or nonresponsive may be eliminated from further review. However, NIST, in its sole discretion, may continue the review process for an application that is missing non-substantive information, the absence of which may easily be rectified during the review process.

b. Full Review of Eligible, Complete, and Responsive Applications. Applications that are determined to be eligible, complete, and responsive will proceed for full reviews in accordance with the review and selection process below:

(1) Abbreviated Applications. Each Abbreviated Application will be reviewed by up to eight (8) independent, objective reviewers. The reviewers may discuss the applications with each other, but rankings will be determined on an individual basis, not as a consensus. The independent reviewers will be scientists knowledgeable in the scientific areas of the program. Each reviewer will create a rank order of the Abbreviated Applications based on the evaluation criteria (see Section V.1. of this NOFO). An aggregated ranking will then be derived based on the numerical average of the individual reviewers' rankings. This aggregated ranking will then be provided to the Selecting Official for further consideration.

The Selecting Official, who is the Chief of the Quantum Measurement Division of the Physical Measurement Laboratory, will then select approximately four (4) to six (6) finalists based upon the aggregated rank order. The Selecting Official may select an Abbreviated Application out of rank order based upon the selection factors in Section V.2. of this NOFO.

(2) Full Applications. Each Full Application submitted by an applicant whose Abbreviated Application was selected as a finalist will be reviewed by the same independent reviewers that reviewed the Abbreviated Applications. The reviewers may discuss the applications with each other, but rankings will be determined on an individual basis, not as a consensus. Each reviewer will create a rank order of the Full Applications based on the evaluation criteria (see Section V.1. of this NOFO). An aggregated ranking will then be derived based on the numerical average of the individual reviewers'

rankings. This aggregated ranking will then be provided to the Selecting Official for further consideration.

The Selecting Official will then select and recommend Full Applications for funding based upon the aggregated rank order. The Selecting Official may select a Full Application out of rank order based upon the selection factors in Section V.2. of this NOFO.

NIST reserves the right to negotiate the budget costs with any applicant selected to receive an award, which may include requesting that the applicant removes certain costs. Additionally, NIST may request that successful applicants 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, or part(s) of any application. The final approval of selected applications and issuance of awards will be by the NIST Grants Officer. The award decisions of the NIST Grants Officer are final.

- c. Federal Awarding Agency Review of Risk Posed by Applicants.** After applications are proposed for funding by the Selecting Official, the NIST Grants Management Division (GMD) performs pre-award risk assessments in accordance with 2 C.F.R. § 200.206, which may include a review of the financial stability of an applicant, the quality of the applicant's management systems, the history of performance, and/or the applicant's ability to effectively implement statutory, regulatory, or other requirements imposed on non-Federal entities.

In addition, prior to making an award where the total Federal share is expected to exceed the simplified acquisition threshold (currently \$250,000), NIST GMD will review and consider the publicly available information about that applicant in the Federal Awardee Performance and Integrity Information System (FAPIIS). An applicant may, at its discretion, review and comment on information about itself previously entered into FAPIIS by a Federal awarding agency. As part of its review of risk posed by applicants, NIST GMD will consider any comments made by the applicant in FAPIIS in making its determination about the applicant's integrity, business ethics, and record of performance under Federal awards. Upon completion of the pre-award risk assessment, the Grants Officer will make a responsibility determination concerning whether the applicant is qualified to receive the subject award and, if so, whether

appropriate specific conditions that correspond to the degree of risk posed by the applicant should be applied to an award.

4. Anticipated Announcement and Award Date

Review of applications, selection of successful applicants, and award processing is expected to be completed by September 2022. The earliest start date for awards under this NOFO is expected to be October 1, 2022.

5. Additional Information

- a. Safety.** Safety is a top priority at NIST. Employees and affiliates of award recipients who conduct project work at NIST will be expected to be safety-conscious, to attend NIST safety training, and to comply with all NIST safety policies and procedures, and with all applicable terms of their guest research agreement.
- b. Notification to Unsuccessful Applicants.** Unsuccessful applicants will be notified by e-mail and will have the opportunity to receive a debriefing after the opportunity is officially closed. Applicants must request within 10 business days of the email notification to receive a debrief from the program office. The program office will then work to compile the feedback from the merit reviewers, which will be sent via email to the requesters no later than November 30, 2022.
- c. Retention of Unsuccessful Applications.** Unsuccessful applications will be retained in accordance with the [General Record Schedule 1.2/021](#).

VI. Federal Award Administration Information

- 1. Federal Award Notices.** Successful applicants will receive an award package from the NIST Grants Officer.
- 2. Administrative and National Policy Requirements**
 - a. Uniform Administrative Requirements, Cost Principles and Audit Requirements.** Through 2 C.F.R. § 1327.101, the Department of Commerce adopted Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 C.F.R. Part 200, which apply to awards in this program. Refer to <http://go.usa.gov/SBYh> and <http://go.usa.gov/SBq4>.
 - b. Department of Commerce Financial Assistance Standard Terms and Conditions.** The Department of Commerce will apply to each award in this program, the Financial Assistance Standard Terms and Conditions in

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effect on the date of award. The current version, dated November 12, 2020, is accessible at [Department of Commerce Financial Assistance Standard Terms and Conditions](#). Refer to Section VII. of this NOFO, Federal Awarding Agency Contacts, Grant Rules and Regulations, if you need more information.

- c. Pre-Award Notification Requirements.** The Department of Commerce will apply the Pre-Award Notification Requirements for Grants and Cooperative Agreements dated December 30, 2014 (79 FR 78390), accessible at <http://go.usa.gov/hKkR>. Refer to Section VII. of this NOFO, Federal Awarding Agency Contacts, Grant Rules and Regulations, for more information.
- d. Funding Availability and Limitation of Liability.** Funding for the program listed in this NOFO is contingent upon the availability of appropriations. NIST or the Department of Commerce will not be responsible for application preparation costs, including but not limited to if this program fails to receive funding or is cancelled because of agency priorities. Publication of this NOFO does not oblige NIST or the Department of Commerce to award any specific project or to obligate any available funds.

NIST issues this Notice subject to the appropriations made available under the current continuing resolution funding the Department of Commerce: Section 101 of Division A of the Extending Government Funding and Delivering Emergency Assistance Act, Public Law 117-43 (Sept. 30, 2021). NIST anticipates making awards for the program listed in this notice provided that funding for Fiscal Year 2022 is continued beyond December 3, 2021, the expiration of the current continuing resolution.

- e. Collaborations with NIST Employees.** All applications should include a description of any work proposed to be performed by an entity other than the applicant, and the cost of such work should ordinarily be included in the budget. If an applicant proposes collaboration with NIST, the statement of work should include a statement of this intention, a description of the collaboration, and prominently identify the NIST employee(s) involved, if known. 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 application prior to the merit review. Any collaboration with an identified NIST employee that is approved by

appropriate NIST management will not make an application more or less favorable in the competitive process.

- f. Use of Government-Owned Intellectual Property.** If the applicant anticipates using any Federal Government-owned intellectual property, in the custody of NIST or another Federal agency, to carry out the work proposed, the applicant should clearly identify such intellectual property in the proposal. This information will be used to ensure that no Federal 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 the Federal Government-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, 2 C.F.R. §200.315, and in Section C.03 of the [Department of Commerce Financial Assistance Standard Terms and Conditions](#), dated November 12, 2020. Questions about these requirements may be directed to the Chief Counsel for NIST, (301) 975-2803, nistcounsel@nist.gov.

Any use of government-owned intellectual property by a recipient of an award under this announcement is at the sole discretion of the Federal Government 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 Federal employee arise in the course of an award made pursuant to this NOFO, the United States Government may retain its ownership rights in any such invention. Licensing or other disposition of Federal Government's rights in such inventions will be determined solely by the Federal Government, and include the possibility of the Federal Government putting the intellectual property into the public domain.

3. Reporting

- a. Reporting Requirements.** The following reporting requirements described in Sections A.01, Reporting Requirements, of the [Department of Commerce Financial Assistance Standard Terms and Conditions](#), dated November 12, 2020, apply to awards in this program:

(1) Financial Reports. Each award recipient will be required to submit an SF-425, Federal Financial Report on a semi-annual basis for the periods ending March 31 and September 30 of each year. Reports will

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be due within 30 days after the end of the reporting period. A final financial report is due within 120 days after the end of the project period.

(2) Research Performance Progress Report (RPPR). Each award recipient will be required to submit a RPPR 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. The RPPR shall conform to the requirements in 2 C.F.R. § 200.329 (<http://go.usa.gov/xkVgP>) and [Department of Commerce Financial Assistance Standard Terms and Conditions](#), Section A.01.

A final RPPR shall be submitted within 120 days after the expiration date of the award, and publication citation information as well as links to publicly available data shall be submitted as soon as they become available.

(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.

(4) Recipient Integrity and Performance Matters. In accordance with section 872 of Public Law 110-417 (as amended; see 41 U.S.C. 2313), if the total value of a recipient's currently active grants, cooperative agreements, and procurement contracts from all Federal awarding agencies exceeds \$10,000,000 for any period of time during the period of performance of an award made under this NOFO, then the recipient shall be subject to the requirements specified in Appendix XII to 2 C.F.R. Part 200, <http://go.usa.gov/cTBwC>, for maintaining the currency of information reported to SAM that is made available in FAPIIS about certain civil, criminal, or administrative proceedings involving the recipient.

b. Audit Requirements. The Department of Commerce Financial Assistance Standard Terms and Conditions, Section D.01, and 2 C.F.R. Part 200 Subpart F, adopted by the Department of Commerce through 2 C.F.R. § 1327.101, require any non-Federal entity (i.e., including non-profit institutions of higher education and non-profit organizations) that expends Federal awards of \$750,000 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 Subpart. Additionally, unless otherwise specified in the terms and conditions of the award, entities that are not subject to Subpart F of 2 C.F.R. Part 200 (e.g., for-profit commercial entities) that expend \$750,000 or more in DOC funds

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during their fiscal year must submit to the Grants Officer either: (i) a financial related audit of each DOC award or subaward in accordance with Generally Accepted Government Auditing Standards; or (ii) a project specific audit for each award or subaward in accordance with the requirements contained in 2 C.F.R. § 200.507. Applicants are reminded that NIST, the Department of Commerce 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 (Public Law 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 available here <http://go.usa.gov/hKnQ>.

VII. Federal Awarding Agency Contacts

Questions should be directed to the following:

Subject Area	Point of Contact
Programmatic and Technical Questions	Dr. Joseph N. Tan Phone: 301-975-8985 E-mail: joseph.tan@nist.gov with “2022 NIST PMGP” in subject line
Technical Assistance with Grants.gov Submissions	grants.gov Phone: 800-518-4726 E-mail: support@grants.gov
Grant Rules and Regulations	Dean Iwasaki Phone: 301-975-8449 E-mail: dean.iwasaki@nist.gov

VIII. Other Information

1. Personal and Business Information

The applicant acknowledges and understands that information and data contained in applications for financial assistance, as well as information and data

contained in financial, performance and other reports submitted by applicants, may be used by the Department of Commerce in conducting reviews and evaluations of its financial assistance programs. For this purpose, applicant information and data may be accessed, reviewed and evaluated by Department of Commerce employees, other Federal employees, and also by Federal agents and contractors, and/or by non-Federal personnel, all of whom enter into appropriate conflict of interest and confidentiality agreements covering the use of such information. As may be provided in the terms and conditions of a specific financial assistance award, applicants are expected to support program reviews and evaluations by submitting required financial and performance information and data in an accurate and timely manner, and by cooperating with Department of Commerce and external program evaluators. In accordance with 2 C.F.R. § 200.303(e), applicants are reminded that they must take reasonable measures to safeguard protected personally identifiable information and other confidential or sensitive personal or business information created or obtained in connection with a Department of Commerce financial assistance award.

In addition, Department of Commerce regulations implementing the Freedom of Information Act (FOIA), 5 U.S.C. Sec. 552, are found at 15 C.F.R. Part 4, Public Information. These regulations set forth rules for the Department regarding making requested materials, information, and records publicly available under the FOIA. Applications submitted in response to this Federal Funding Opportunity may be subject to requests for release under the Act. If an application contains information or data that the applicant deems to be confidential commercial information that should be exempt from disclosure under FOIA, that information should be identified, bracketed, and marked as Privileged, Confidential, Commercial or Financial Information. In accordance with 15 CFR § 4.9, the Department of Commerce will protect from disclosure confidential business information contained in financial assistance applications and other documentation provided by applicants to the extent permitted by law.

2. Public Website

NIST PMGP has a public website, <http://www.physics.nist.gov/pmg>, that provides information pertaining to this Funding Opportunity³. Any amendments to this NOFO will be announced through Grants.gov.

Applicants must submit all questions pertaining to this funding opportunity in writing via e-mail to pmg@nist.gov with “2022 NIST PMGP” in the subject line.

³ Refer to Section VII. of this NOFO, Federal Awarding Agency Contacts, Programmatic and Technical Questions, if more information is needed.