

**U.S. Department of Commerce, Notice of Funding Opportunity (NOFO), NIST,  
Measurement Science and Engineering (MSE) Research Grant Programs,  
2025-NIST-MSE-01**

**Funding Opportunity**

**Description:** NIST is soliciting applications for financial assistance for Fiscal Year 2025 (FY25) within the following NIST grant programs:

- (1) Associate Director for Innovation and Industry Services (ADIIS);
- (2) Associate Director for Laboratory Programs (ADLP);
- (3) CHIPS Research & Development Program Office (CRDO);
- (4) Communications Technology Laboratory (CTL);
- (5) Engineering Laboratory (EL);
- (6) Fire Research (FR);
- (7) Information Technology Laboratory (ITL);
- (8) International and Academic Affairs Office (IAAO);
- (9) Material Measurement Laboratory (MML);
- (10) NIST Center for Neutron Research (NCNR);
- (11) Physical Measurement Laboratory (PML);
- (12) Special Programs Office (SPO); and
- (13) Standards Coordination Office (SCO).

**Announcement Type:** Initial

**Funding Instrument:** This funding opportunity will result in the award of grants or cooperative agreements. A grant or cooperative agreement is not the correct funding vehicle if the principal purpose is to provide products or services for the direct benefit or use of the federal government.

**Assistance Listing (CFDA Number):** 11.042: CHIPS R&D, 11.609: Measurement and Engineering Research and Standards, 11.619: Arrangements for Interdisciplinary Research Infrastructure, and 11.620: Science, Technology, Business and/or Education Outreach.

**Period of Performance:** Project performance period of up to five (5) years.

**Goals & Objectives:** To support activities that develop, expand, strengthen, or sustain NIST partnership programs and/or support the conduct of research or a recipient's portion of collaborative research in a

variety of areas including, but not limited to: Metrology; Standards; Nanotechnology; Artificial Intelligence; Advanced Communications; Advanced Manufacturing; Promotion of U.S. innovation and industrial competitiveness; Measurements in Sciences; Neutron Research; and enhancing coordination of the U.S. Standards System with government and private sector organizations.

**Eligible Applicants:** This NOFO is open to all non-Federal entities to include, institutions of higher education, non-profit organizations, for-profit organizations, state and local governments, Indian tribes, hospitals, foreign public entities, and foreign governments. Individuals and unincorporated sole proprietors are not considered “non-Federal entities” and are not eligible to apply under this NOFO. NIST seeks to collaborate with a wide range of organizations and encourages minority-serving institutions of higher education and community colleges to apply.

**Funding Amount:** See Section II. in the Full Announcement Text of this NOFO.

**Cost Share/Matching Requirements:** The MSE Research Grant Programs do not require cost sharing or matching.

**Submission Dates and Times:** Applications will be accepted and considered on a rolling basis as they are received. See Section IV.4. in the Full Announcement Text of this NOFO.

**How to Apply:** Applications must be submitted using [Grants.gov](https://grants.gov). Paper applications will not be accepted.

**Review and Selection Process:** See Section V.2. in the Full Announcement Text of this NOFO.

**Agency Contacts:** **Programmatic and Technical Questions:**  
See Section VII. in the Full Announcement Text of this NOFO.

**Grant Rules and Regulations:**  
See Section VII. in the Full Announcement Text of this NOFO.

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## **FULL ANNOUNCEMENT TEXT**

### **I. Program Description**

NIST's mission is to promote innovation and industrial competitiveness by advancing measurement science, standards, and technology, including by funding extramural research. This NOFO seeks applications for measurement science and standards research in the areas described by each MSE Grant Program below, which will support the development of a general population that understands and appreciates measurement science and standards. NIST seeks to collaborate with a wide range of organizations including but not limited to minority-serving institutions and community colleges, in support of NIST's mission.

#### **1. Associate Director for Innovation and Industry Services (ADIIS) Grant Program**

The statutory authority for the ADIIS Grant Program is 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1(e), and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The ADIIS Grant Program supports activities that develop, expand, strengthen, or sustain NIST partnership programs within the ADIIS Directorate through measurements, standards, data, industry and technology studies, and technology research and development (R&D). Specifically, the ADIIS Grant Program seeks to support technology innovation and service to American industry in fields including bioscience, chemistry, dimensional metrology, electronics, engineering, infrastructure, information technology, manufacturing, manufacturing metrology, materials science and engineering, nanotechnology, neutron research, optics, and physics.

The ADIIS Directorate's current partnership programs include the Baldrige

Performance Excellence Program<sup>1</sup>, the Hollings Manufacturing Extension Partnership (MEP)<sup>2</sup>, programs within the NIST Office of Advanced Manufacturing<sup>3</sup>, and programs within the NIST Technology Partnerships Office<sup>4</sup>. Financial assistance may be provided to bolster measurements, standards, data, and technology R&D within these partnership programs, or through new partnerships, to:

- advance early-stage research and development for industry;
- enhance opportunities in manufacturing through innovation;
- strengthen supplier programs for small and medium manufacturers;
- encourage the transfer and commercialization of research and technology from institutions of higher education, federal laboratories, other federally funded research programs, and nonprofit research institutes, as well as research or evaluate the impacts of such transfer and commercialization;
- create jobs or promote workforce development; and
- realize or sustain metrology needs in American industry, including through technical metrology training programs for manufacturers.

Financial support may be provided for conferences, workshops, studies, workforce development activities, or technical R&D meetings that are relevant to advancing NIST partnerships in technology innovation and service to American industry. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program.

All applications submitted to the ADIIS Grant Program must be in accordance with the program objectives listed above.

Financial support will not be provided for the establishment of an MEP Center or to augment the capabilities of an MEP Center through an MEP Center applicant. Current MEP Centers may add capabilities to the MEP Program, including the development of projects to solve new or emerging manufacturing problems, through the rolling MEP Competitive Awards Program NOFO (see <https://www.nist.gov/mep/nist-mep-competitive-awards-program-cap>).

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<sup>1</sup> The Baldrige Program oversees the nation's only Presidential award for performance excellence while offering a wide array of award-winning products and services, including the world-renowned Baldrige Excellence Framework. See <https://www.nist.gov/baldrige> for more information.

<sup>2</sup> MEP is a public-private partnership with Centers in all 50 states and Puerto Rico dedicated to serving small and medium-sized manufacturers. See <https://www.nist.gov/mep> for more information.

<sup>3</sup> The NIST Office of Advanced Manufacturing coordinates the network of Manufacturing USA institutes and leads the interagency Advanced Manufacturing National Program Office. See <https://www.nist.gov/oam> for more information.

<sup>4</sup> Programs within the NIST Technology Partnership Office include the NIST Technology Transfer Program, the Lab to Market Initiative, and the Economic Analysis Program. See <https://www.nist.gov/tpo> for more information.

Financial support will not be provided for the NIST Small Business Innovation Research (SBIR) program. The NIST SBIR program solicits research and development proposals from small businesses that respond to specific technical needs described in the annual NIST SBIR Program NOFO. Please visit the NIST SBIR Program webpage for more information: <https://www.nist.gov/tpo/small-business-innovation-research-program>.

Additional information about the ADIIS and ADIIS Programs may be obtained at <https://www.nist.gov/adiis>. Bryana Head is the contact person for the ADIIS Grant Program, who can be contacted for clarification of the program objectives. She may be reached at (301) 975-4885 or by e-mail at [bryana.head@nist.gov](mailto:bryana.head@nist.gov).

## **2. Associate Director for Laboratory Programs (ADLP) Grant Program**

The ADLP Grant Program's statutory authority is 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1(e), and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The ADLP Grant Program provides financial assistance to support the conduct of research or a recipient's portion of collaborative research consistent with the NIST mission in areas consistent with the interests of NIST research programs including but not limited to bioscience, communications, advanced manufacturing, artificial intelligence, resilience, quantum information science, etc. Financial support may be provided to organizations to sponsor individual participation in career development and outreach programs in advance of the NIST mission and laboratory priorities. Financial support may be provided for students to attend education and outreach programs, conferences, workshops, or other technical research meetings that are relevant to the mission of the ADLP. Financial support may also be provided to organizations sponsoring conferences, workshops, education and outreach programs, or other technical events that are relevant to the mission of the ADLP. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program.

Additional information about the ADLP and ADLP Programs may be obtained at <http://www.nist.gov/director/adlp.cfm>.

All applications submitted to the ADLP Grant Program must be in accordance with the program objectives listed above. Stephanie Shaw is the contact person for the ADLP Grant Program, who may be contacted for clarification of the program objectives. She may be reached at (301) 975-2667 or by e-mail at [stephanie.shaw@nist.gov](mailto:stephanie.shaw@nist.gov).

## **3. CHIPS Research & Development Program Office (CRDO) Grant Program**

The statutory authority for the CRDO Grant Program is 15 U.S.C. § 272(b) and (c), 15 U.S.C. §§ 278g-1(e), 15 U.S.C. §§ 4651, 4656, and 4657, and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The CRDO supports advanced microelectronics research to advance the development of semiconductor technologies. The CRDO is focused on establishing the capacity of inventing, developing, prototyping, and deploying the foundational semiconductor technologies of the future in the United States. The CRDO's activities enable advances and breakthroughs in measurement science, standards, material characterization, instrumentation, testing, and manufacturing capabilities to ensure U.S. competitiveness and leadership in microelectronics.

The CRDO Grant Program provides financial assistance to support the conduct of research or a recipient's portion of collaborative research consistent with the CRDO's mission to support research in the following fields: semiconductor and microelectronics manufacturing, virtualization, and automation of semiconductor machinery, chiplets, co-design and simulation, and materials and substrates.

Additional information about the CRDO and CRDO Programs may be obtained at [Research & Development Programs | NIST](#).

All applications submitted must be in accordance with the program objectives listed below for the CRDO divisions. Crystal Murphy is the contact person for the CRDO Grant Program, who may be contacted for clarification of the program objectives. She may be reached at (202) 697-2117 or by e-mail at [crystal.murphy@chips.gov](mailto:crystal.murphy@chips.gov).

- a. CRDO Headquarters Office:** Financial support may be provided for conferences, workshops, or other technical research meetings that are relevant to the mission of the CRDO. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program. Support is generally provided in increments of \$5,000 per award. Applications for other purposes may be considered.
- b. CHIPS Metrology Program:**  
All objectives of interest will focus on conducting the measurement science, or metrology, critical to the development of new materials, packaging, and production methods for semiconductors. Specific objectives of interest include but are not limited to researching, developing, promoting, prototyping, measuring, and deploying emerging technologies, standards and test methods related to the following seven Metrology Grand Challenges,

identified in [NIST's Strategic Opportunities for U.S. Semiconductor Manufacturing: Facilitating U.S. Leadership and Competitiveness through Advancements in Measurements and Standards](#) publication:

- **Metrology for Materials Purity, Properties, and Provenance:** Measurement technologies, properties data, and standards focused on defect and contaminant identification to support uniform materials quality and traceability across the supply chain.
- **Advanced Metrology for Future Microelectronics Manufacturing:** Physical and computational metrology tools adaptable to next-generation manufacturing of advanced complex, integrated technologies, and systems.
- **Enabling Metrology for Integrating Components in Advanced Packaging:** Metrology for complex integration of sophisticated components and new materials to support a strong domestic advanced microelectronics packaging industry.
- **Modeling and Simulating Semiconductor Materials, Designs, and Components:** Advanced design simulators using multi-physics models and next-generation concepts such as artificial intelligence and digital twins, empowering U.S. microelectronics designers.
- **Modeling and Simulating Semiconductor Manufacturing Processes:** Advanced computational models, methods, data, standards, automation, and tools to enable domestic semiconductor manufacturers to improve yields, accelerate time to market, and enhance competitiveness.
- **Standardizing New Materials, Processes, and Equipment for Microelectronics:** Standards, validation tools, and protocols for next-generation materials, processes, and equipment, paving the way for accelerated innovation and cost-competitiveness in U.S. industry.
- **Metrology to Enhance Security and Provenance of Microelectronic based Components and Products:** Approaches to hardware security protection that includes standards, protocols, formal testing processes, and advanced computational technologies while providing avenues for assurance and provenance of microelectronic components across the supply chain and end products.

Additional objectives include work on reference materials, reference data, and calibrations for the precision equipment used in chip manufacturing, and the development of standards for semiconductor processes and cybersecurity.

#### c. Domestic Control, Domestic Production, and Research Security Requirements for CRDO

##### 1. Domestic Control

In the event that intellectual property (see definition below) results from work funded under this program, the domestic control requirements pursuant to 15 U.S.C. § 4656(g), as explained in this section, shall apply to the award recipient and any subrecipients.

For purposes of complying with 15 U.S.C. § 4656(g), the following definitions apply.

- a. “Intellectual property” means any invention that is or may be patentable under U.S. law.
- b. “Foreign adversaries” includes, but is not necessarily limited to, any “foreign entity of concern” and “foreign country of concern,” as those terms are defined in 15 U.S.C. § 4651(7)-(8) and 15 C.F.R. §§ 231.102 and 231.104, as well as any entity whose actions, policies, or personnel decisions are controlled by a “foreign entity of concern” or “foreign country of concern.”
- c. “Domestic entity” includes: (1) a State, local, or Tribal government in the United States; and (2) any (for- or non-profit) entity that is (a) organized under the laws of the United States or any jurisdiction within the United States and (b) has a principal place of business in the United States. The principal place of business generally means the place where an entity’s officers direct, control, and coordinate the entity’s activities. A foreign adversary cannot be considered a domestic entity.”

The applicable domestic control requirements for any intellectual property produced under the award funded under this program include but are not limited to:

**Ownership:** At least one U.S. entity must own or co-own any intellectual property (IP) created with this funding. This entity must have the right to enforce IP rights for at least 3 years after either the project end date or the IP is disclosed to NIST, whichever is later.

**Post 3 years:** The IP can generally be sold or transferred to a foreign entity, as long as the foreign entity is not a foreign adversary.

**Notification Requirement:** If a U.S. entity plans to sell or transfer the IP, it must notify NIST before proceeding.

**Foreign Adversaries Restriction:** The IP cannot be sold, transferred, or licensed to a foreign adversary (with some exceptions as provided by NIST).



In the event the Recipient or a subrecipient violates the domestic control requirements pursuant to 15 U.S.C. § 4656(g), NIST may impose any remedy available under 2 CFR §§ 200.339-343.

## **2. Domestic Production**

As set forth in 15 U.S.C. § 4656(g), the Department of Commerce must “develop policies to require domestic production, to the extent possible, for any intellectual property” resulting from R&D funded under this program. In the case such intellectual property is created under this award, domestic production requirements may apply, in addition to domestic manufacture requirements under the Bayh-Dole Act, as applicable.

## **3. Research Security**

Pursuant to 15 U.S.C. § 4657, no CHIPS Act funding under this program may be provided to a foreign entity of concern, as defined in 15 U.S.C. § 4651 and 15 C.F.R. 231.103 and 231.104. For awards under the CHIPS Research & Development Office (CRDO) Grant Program, NIST also will apply the requirements of [42 U.S.C. § 6605](#) and certain requirements resulting from the promulgation of [National Security Presidential Memorandum-33](#) (NSPM-33) and [NSTC NSPM-33 Guidance](#) issued in January 2022.

As is described in Sections IV.2.a.(7) and IV.2.a.(12) of this NOFO, the Applicant must provide a resume/CV for each Senior/Key Person participating in the proposal, and each such individual also must complete a [Current and Pending Support Form](#). See also the budget-related requirements for Senior/Key personnel in Sections IV.2.a.(2)A. and IV.2.a.(7) of this NOFO.

NIST will deem any individual listed as a Senior/Key Person in the Application to be a “covered individual”. The term “covered individual” is defined as “an individual who (1) contributes in a substantive, meaningful way to the scientific development or execution of a research and development project proposed to be carried out with a research and development award from a Federal research agency; and (2) is designated as a covered individual by the Federal research agency concerned,” as under 42 U.S.C. § 6605(d)(1).

For any CRDO Grant Program application that may be selected for an award, the NIST Research Security Office (RSO) will conduct a research security review. In conducting this review, the NIST RSO will review the proposed project, and the Current and Pending Support Form(s) and Resume(s)/CV(s) of covered individuals to assess whether the Applicant or any covered individuals are

subject to any undue foreign influence or interference through conflicts of interest or conflicts of commitment, including but not limited to any associations with any foreign country of concern<sup>5</sup> or malign foreign talent recruitment program.<sup>6</sup>

At the conclusion of the research security review, the NIST RSO will issue and provide to CRDO a risk determination of a low, medium, or high risk of potential foreign interference or exploitation. The risk determination may result in the applications not being funded, or the inclusion of Specific Award Conditions to mitigate any risks or to ensure compliance with all research security requirements, including but not limited to imposing a requirement: that each covered individual receive research security training and/or execute a Nondisclosure Agreement; that the Awardee provide a research security and/or technology control plan (see NIST Internal Reports (IRs) [8484](#) and [8481](#)); and/or that intellectual property and domestic control measures be included.

#### 4. Communications Technology Laboratory (CTL) Grant Program

The statutory authority for the CTL Grant Program is 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1(e), 15 U.S.C. § 278n-1, 15 U.S.C. § 3706, 42 U.S.C. § 17385, and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The Communications Technology Laboratory (CTL) plays a vital role in ensuring that American industry can satisfy the growing global need for broadband technologies and applications through the accelerated development, testing, and deployment of advanced communications and connected systems technologies for commercial and government applications.

The CTL Grant Program provides financial assistance to support the conduct of research or a recipient's portion of collaborative research consistent with the CTL mission in the broad areas of public safety research, RF technologies, wireless networks including 6G and beyond, smart connected systems, quantum communications including both network and components, spectrum sharing and sensing, and space communications.

Additional information about the CTL and CTL Programs may be obtained at [www.nist.gov/ctl](http://www.nist.gov/ctl). All applications submitted must be in accordance with the program objectives listed below for the five CTL divisions. Kristine Tadros is the

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<sup>5</sup> The term "foreign country of concern" means the People's Republic of China, the Democratic People's Republic of Korea, the Russian Federation, the Islamic Republic of Iran, or any other country determined to be a country of concern by the Secretary of State. 42 U.S.C. § 19237(2).

<sup>6</sup> See definition at 42 U.S.C. § 19237(4).

contact person for the CTL Grant Program. She may be reached at (303) 501-3701 or by e-mail at [kristine.tadros@nist.gov](mailto:kristine.tadros@nist.gov).

- a. **CTL Office.** Financial support may be provided for conferences, workshops, or other technical research meetings relevant to the CTL's mission. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program. Applications for other purposes may be considered.
- b. **Public Safety Communications Research Division.** Specific objectives of interest include but are not limited to researching, developing, promoting, measuring, and deploying emerging technologies and standards that enhance the ability of first responders and others leveraging a Public Safety Communications network during standard and emergency operations.
- c. **RF Technologies Division.** Specific objectives of interest include but are not limited to researching, developing, promoting, measuring, and deploying emerging technologies and standards in fundamental microwave quantities, high-speed microelectronics, superconducting electronics, electromagnetic compatibility, electromagnetic field characterization, antenna metrology, electromagnetic properties of materials, electrical hardware security, and radio frequency communications systems.

Additional objectives include quantum networks, characterization of microwave circuits at cryogenic temperatures, superconducting integrated circuits for precision measurement and fundamental standards, such as for DC and AC voltage, impedance, signal synthesis, RF reference sources for wireless communications, and quantum advanced computing. Methods employed are both experimental and theoretical and include multivariate uncertainty analysis.

- d. **Wireless Networks Division.** Specific objectives of interest include, but are not limited to, researching, developing, promoting, measuring, and deploying emerging technologies and standards related to how wireless networks are designed, managed, and used. Additional objectives include conducting theoretical and experimental research in communication networks, protocols, digital communication systems, and components; utilizing analytical and empirical approaches, developing simulation models, experimental testbeds, and proof of concept prototypes to evaluate new technologies and refine standard specifications for wireless and core networks and systems; and developing metrics and measurement methods to assess the performance and trustworthiness of wireless and core systems.
- e. **Smart Connected Systems Division.** Specific objectives of interest include but are not limited to, researching, developing, promoting,

measuring, and deploying emerging technologies, standards, and test methods for trustworthy autonomous systems, cloud networks, and quantum networks.

- f. Spectrum Technology and Research Division.** Specific objectives of interest include but are not limited to, research, development, and deployment of innovative measurement methods and tools to promote novel and efficient use of the electromagnetic optical spectra through improved access, sharing, atmospheric sensing, and precision timing. Additional objectives include the following: wireless co-existence; Artificial Intelligence/Machine Learning (AI/ML) applied to closed-box systems testing; microwave noise metrology; RF spectrum sensing; fiber optic combs applications in atmospheric spectroscopy, time synchronization, chemical analysis, and telecommunications; and development and deployment of spectrum-efficient and spectrum-sharing technologies, including support of the National Advanced Spectrum and Communications Test Network (NASCTN).

## **5. Engineering Laboratory (EL) Grant Program**

The statutory authorities for the EL Grant Program are 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1(e), 15 U.S.C. § 278n-1, 15 U.S.C. § 278n-2, 42 U.S.C. § 7701 et seq., 42 U.S.C. § 15701 et seq; and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The EL Grant Program provides financial assistance to support the conduct of research or a recipient's portion of collaborative research consistent with the EL's mission to support research in the following fields: advanced manufacturing; additive manufacturing; robotics and autonomous systems; intelligent systems; and information systems integration for applications in manufacturing; polymeric materials; heating, ventilation, air conditioning, and refrigeration (HVAC & R) equipment performance; building mechanical systems and controls; building envelope and material performance; energy conversion systems; premise plumbing and water use; indoor air quality and ventilation; and applied economics. Financial support may be provided for conferences, workshops, or other technical research meetings that are relevant to the mission of EL. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program. Additional information about the EL and EL Programs may be obtained at [www.nist.gov/el](http://www.nist.gov/el).

The EL Grant Program supports the EL mission to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology for engineered systems in ways that enhance economic security and improve quality of life. Typical funded activities may include measurement science research; development of performance metrics, tools, and

methodologies for engineering technologies and applications; and critical technical contributions to standards and code development.

All applications submitted must be in accordance with the program objectives listed below. The appropriate EL Program Manager for each EL field of research described in this Section may be contacted for clarification of the program objectives. The contact person for the EL Grant Program is Jason Averill, who may be reached at (301) 975-2585 or by e-mail at [jason.averill@nist.gov](mailto:jason.averill@nist.gov).

- a. Applied Economics Office.** The primary objective is to provide standardized methods, economic models, training programs and materials, and expert technical consulting in support of resource allocation decisions. The office uses techniques such as benefit-cost analysis, life-cycle costing, multi-criteria decision analysis, life-cycle assessment, decision science, and econometrics to evaluate new technologies. The contact person is David Butry who may be reached at (301) 975-6136 or by e-mail at [david.butry@nist.gov](mailto:david.butry@nist.gov).
- b. Materials and Structural Systems Division.** The primary objective is to collaborate with or conduct research consistent with the division's programs in infrastructure materials, buildings and infrastructure systems, community resilience, and codes and standards. Applications for financial assistance are sought that addresses either one of the following specific subject areas or that addresses more than a single subject area with a cross-cutting, interdisciplinary research team:

  - 1) Infrastructure Materials:** There are emergent concrete degradation mechanisms that originate in the coarse or fine aggregate component of a concrete mixture. These mechanisms may arise from inadequate standardized testing for the specific aggregate mineral features that may lead to expansion and cracking. The measurement challenge is typically associated with aggregate characteristics, or the critical quantity of aggregate required to cause damage. There are also measurement challenges with using new construction methods, including additive concrete extrusion.
  - 2) Buildings and Physical Infrastructure:** Degradation of construction materials, in turn, affects performance, structural integrity, resilience, and sustainability of the built environment, and measurement science to quantify the effects of degradation mechanisms on overall service life, structural safety, and resilience of physical systems in the U.S. is still a major challenge. Measurement challenges include accurate characterization of extreme natural hazards (e.g., hurricane wind and storm surge, tornadoes, flooding, and earthquakes), developing risk-consistent design criteria for the built environment, science-based

accounting for future changes to natural hazards, building and infrastructure performance, and life-cycle prediction.

- 3) Community Resilience:** Community resilience considers the integrated performance of buildings and infrastructure systems for future hazard events and under adverse conditions and the consequences and impacts on populations, social systems, and economics of a community or region. Measurement challenges include integrated modeling of physical, social, economic, and natural systems; metrics and indicators at a community scale for decision makers; economic assessments of costs and benefits over a future specified time period; and methods to address future changes to natural hazards. The contact person for this division is Aron Newman, and he may be reached at (301) 975-5965 or by e-mail at [aron.newman@nist.gov](mailto:aron.newman@nist.gov).

- c. Building Energy and Environment Division.** The primary objective is to collaborate with or conduct research consistent with the laboratory programs in areas related to measurement science needed to enable high-performance buildings. The breadth of this area includes measurement science associated with the building envelope, HVAC equipment, energy generation and delivery systems, building controls/building automation systems, building water systems, and strategies to improve indoor air quality. Applications for financial assistance are sought that would:

**(1) Provide measurement science for high-performance buildings.**

Measurement systems, approaches, and predictive models are required that can help to enable high-performance buildings. A primary objective is to develop measurement methods and approaches, data, and predictive models to assess the effectiveness of building enclosures from a thermal and airtightness perspective; the performance of indoor space conditioning systems; the performance of energy generation and delivery systems, indoor air quality; and water efficiency and quality in buildings. Additionally, an objective is to develop techniques to assess buildings on a whole-building scale. These techniques could involve standards, system interactions, and multiple factors that can be considered to represent high performance. The contact person is William Healy, and he may be reached at (301) 975-4922 or by e-mail at [william.healy@nist.gov](mailto:william.healy@nist.gov).

- (2) Enable improved building operations through embedded intelligence in building controls.** Next-generation metrics and tools are needed that enable the development and deployment of building automation and control systems with embedded intelligence that improve building system operation. A primary objective is to develop measurement methods,



models, and algorithms/tools suitable for embedding in building control system products that enable better or more automated system commissioning, automated fault detection and diagnostics, improved system-level optimization, and integration of building systems with a smart electrical grid. Additionally, an objective is to conduct research that provides a basis for new industry standards for intelligent building systems. The contact person is William Healy, and he may be reached at (301) 975-4922 or by e-mail at [william.healy@nist.gov](mailto:william.healy@nist.gov).

- (3) Develop metrics/tools for building evaluation.** Next-generation metrics and tools enabling rigorous assessment of performance over the building service life are needed to link building technology innovation to economic benefits. A primary objective is the development of databases and/or models for estimating component and system costs for existing and emerging energy-related technologies in new buildings. Additionally, an objective is to develop techniques for performing life-cycle impact assessments of emerging technologies. The contact person is David Butry, and he may be reached at (301) 975-6136 or by e-mail at [david.butry@nist.gov](mailto:david.butry@nist.gov).

**d. Systems Integration Division.** The primary objective is to collaborate with or conduct research consistent with Division programs and research in measurement science for advanced manufacturing systems integration. Areas of particular interest include integration standards and new science-based methods and tools for validating compliance to those standards, performance metrics, measurement methods and tools, test artifacts, and associated reference data and software for:

- (1)** Circular Economy for manufacturing (including measurements and standards for systems integration related to manufacturing, critical material recovery, and standards for design for material recovery and reuse, modeling, and simulation analysis);
- (2)** Additive manufacturing (including data collection and processing; advanced informatics and artificial intelligence for additive manufacturing; data integration, fusion, and management for additive manufacturing; and measurement science supporting the qualification of additive manufacturing machines, processes, and parts);
- (3)** Digital twin (including measurement science, methods, and tools for integrating, testing, and validating digital twins); and
- (4)** Biomanufacturing (including systems integration for biomanufacturing supply chain, integration methods, and standards).

Additional information regarding Systems Integration Division research programs and projects can be found at [www.nist.gov/el/sid](http://www.nist.gov/el/sid). The contact person for this division is Yan Lu who may be reached at 301-975-8228 or by e-mail at [yan.lu@nist.gov](mailto:yan.lu@nist.gov).

**e. Intelligent Systems Division.** The primary objective is to collaborate with or conduct research consistent with Division programs and research in measurement science for intelligent systems. Areas of particular interest include measurement methods and tools, test artifacts, performance metrics, and associated reference data and software for:

- (1) Manufacturing, public safety, and other applications of robotic and autonomous systems (including measurement science for understanding perception, dexterous manipulation and grasping, contact safety, mobile manipulation, exoskeletons, human-robot and robot-robot collaboration, robot agility, robot system integration, artificial intelligence, and autonomy for these systems). More information about the research of the NIST Measurement Science for Robotics and Autonomous Systems Program may be found at: <https://www.nist.gov/programs-projects/measurement-science-robotics-and-autonomous-systems>; and
- (2) Additive manufacturing (including fundamental measurements for metal additive manufacturing; characterization of additive manufacturing materials; metrology for additive manufacturing model validation; advanced machines, monitoring, and control for additive manufacturing; and measurement science supporting the qualification of additive manufacturing materials, machines and processes, and parts). More information about research of the NIST Measurement Science for Additive Manufacturing Program may be found at: <https://www.nist.gov/programs-projects/measurement-science-additive-manufacturing-program>; and
- (3) Augmented intelligence for manufacturing systems, including sensing, prognostics, and health management for smart manufacturing, and AI applications for these topics. More information about the research of the NIST Augmented Intelligence for Manufacturing Systems Project may be found at: <https://www.nist.gov/programs-projects/augmented-intelligence-manufacturing-systems-aims>; and,
- (4) Emergency response robot performance metrics and standards. More information about research of the NIST Emergency Response Robots Project may be found at: <https://www.nist.gov/programs-projects/emergency-response-robots>.



Additional information regarding Intelligent Systems Division research programs and projects can be found at [www.nist.gov/el/isd](http://www.nist.gov/el/isd). Successful proposals are typically well-aligned with the division's current and ongoing measurement science research projects. The contact person for this division is Kevin Jurrens, who may be reached at (301) 975-5486 or by e-mail at [kevin.jurrens@nist.gov](mailto:kevin.jurrens@nist.gov).

## 6. Fire Research (FR) Grant Program

The statutory authority for the FR Grant Program is 15 U.S.C. § 272(b)(4), 15 U.S.C. § 278f, 15 U.S.C. § 278g-1(e), 15 U.S.C. § 278n-1 and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The FR Grant Program provides financial assistance to support the conduct of research or a recipient's portion of collaborative research in areas of current interest to the Fire Research Division. The Fire Research Division develops, verifies, and utilizes measurements and predictive methods to quantify the behavior of fire and means to reduce the impact of fire on society. This work involves the integration of laboratory measurements, verified methods of prediction, and large-scale fire experiments to demonstrate the use and value of the research products. Details on current Division research activities are available at [http://www.nist.gov/el/fire\\_research/index.cfm](http://www.nist.gov/el/fire_research/index.cfm). The contact person for the FR Grant Program is Dr. Jiann Yang, and he may be reached at (301) 975-6662 or by e-mail at [jiann.yang@nist.gov](mailto:jiann.yang@nist.gov).

All applications submitted must be in accordance with the program objectives listed below.

- a. Fire Fighting Technology Group.** Develops, advances, and deploys measurement science to improve firefighting safety and effectiveness, and provide a science-based understanding of fire phenomena. Carries out mission-related measurement science research and services to advance cyber-physically based (smart) firefighting, technology integration into fire-fighting equipment, fire risks of new technologies, and physics-based training tools that predict fire phenomena and their effects on structures and occupants and conducts disaster and failure studies to reduce the risk of fire hazard to buildings and firefighters.
- b. Engineered Fire Safety Group.** Develops, advances, and deploys measurement science for cost-effective fire protection of structures. Carries out mission-related measurement science research and services to predict the fire performance of structures with respect to ignition fire growth and spread, detection, suppression, toxicity, and egress; develops cost-effective performance-based codes, standards, and practices used for fire prevention

and control; and conducts disaster and failure studies to reduce the risk of fire hazard to buildings and occupants.

- c. Flammability Reduction Group.** Develops, advances, and deploys measurement science to reduce the fire hazard of building contents and construction materials. Carries out mission-related measurement science research and services to reduce material ignition probability, fire growth and spread; research to understand the risk of firefighters being exposed to per- and polyfluoroalkyl substances (PFAS); and supports development of standards for cost-effective, fire-safe building contents and construction materials, and reducing firefighter's exposure to PFAS.
- d. Wildland Urban Interface Fire Group.** Develops, advances, and deploys measurement science to reduce the risk of fire spread in wildland-urban interface (WUI) communities. Carries out mission-related measurement science research and services to develop risk exposure metrics, predict the spread of fires in WUI communities, assess fire performance of structures and communities, mitigate the impact of WUI fires on structures and communities, and conduct disaster and failure studies to reduce the risk of fire hazard in WUI communities.
- e. National Fire Research Laboratory Group.** Develops, advances, and deploys measurement science to reduce the risk of structural fires. Carries out mission-related measurement science research and services to understand the performance of structures exposed to fire, create new data to advance performance-based design approaches, and develop new large-scale fire metrology.

## **7. Information Technology Laboratory (ITL) Grant Program**

The statutory authority for the ITL Grant Program is 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1(e), 15 U.S.C. § 278n-1 and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The mission of the Information Technology Laboratory (ITL) is to cultivate trust in information technology (IT) and metrology and is accomplished using its world-class measurement and testing facilities and encompassing a wide range of areas of computer science, mathematics, statistics, and systems engineering.

The ITL Grant Program provides financial assistance to support the conduct of research or a recipient's portion of collaborative research consistent with the ITL's missions to support research in the following fields: applied and computational, mathematics, artificial intelligence, big data analytics, biometrics,

cloud computing, cyber-physical systems, cybersecurity, forensic science, health information technology, high-performance computing, human factors and usability, information access, information processing and understanding, Internet of Things (IoT), metrology infrastructure for modeling and simulation, privacy engineering, and statistical design, analysis, and interpretation.

Additional information about the ITL and ITL Programs may be obtained at [www.nist.gov/itl](http://www.nist.gov/itl).

Financial support may be provided to attend education and outreach programs, conferences, workshops, or other technical research meetings that are relevant to the ITL's mission. Financial support may also be provided to organizations sponsoring conferences, workshops, or other technical events that are relevant to the mission of the ITL. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program.

All applications submitted to the ITL Grant Program must be in accordance with the program objectives listed below. Patricia Wilburg is the contact person for the ITL Grant Program, who may be contacted for clarification of program objectives. She may be reached by e-mail at [patricia.wilburg@nist.gov](mailto:patricia.wilburg@nist.gov).

- a. **NIST Artificial Intelligence Innovation Lab (NAAIL):** NAAIL develops measurement science capabilities to accelerate innovation in providing a foundation for the community to evaluate and test AI in ways that will improve its functionality and trustworthiness. Specific topics of interest include evaluating safe and trustworthy AI systems, and foundational research on examining, measuring, and understanding the tradeoff among various aspects of trustworthy AI systems, which include valid and reliable; safe, secure; and resilient; accountable; and transparent; explainable; and interpretable; privacy enhanced; and fair with biases managed.
- b. **Applied and Computational Mathematics Division (ACMD)** nurtures trust in metrology and scientific computing through the development and application of advanced mathematical and computational techniques and tools. Current topics of interest include: the Mathematics of Special Functions; Quantum Information Science and Engineering; Combinatorial Methods; and Modeling of Internet of Things for Health Applications.
- c. **Applied Cybersecurity Division (ACD)** implements practical cybersecurity and privacy through outreach and effective application of standards, guidelines, and technologies. ACD establishes cybersecurity and privacy standards and practices in an open, transparent, and collaborative way, and conducts research in applied cybersecurity and privacy. Specific objectives of interest in these areas

of research include education and workforce; risk management; identity and access management; Internet of Things cybersecurity, hardware cybersecurity, privacy risk management; cybersecurity and privacy of genomics data, and cybersecurity and privacy considerations for emerging technologies.

- d. **Computer Security Division (CSD)** develops cybersecurity standards, guidelines, tests, data references and metrics to protect federal information and information systems. CSD helps to develop innovative security technologies that enhance the nation's ability to address current and future computer and information security challenges. CSD's research focuses on cryptography, automation, identity and access management, supply chain risk management, cybersecurity metrics, security engineering and cryptographic conformance testing. The Division maintains a Computer Security Resource Center (CSRC), which provides access to NIST's cybersecurity- and information security-related projects, publications, news, and events. Specific objectives of interest in these areas of research include Cryptography and Cryptographic Test Methods; Hardware Cybersecurity; Threshold Cryptography; Post Quantum Cryptography; Security Testing Tools and Metrics; Vulnerability Semantics; Privacy Enhancing Cryptography; Cybersecurity Conformance Testing; Security Automation; and Security Engineering.
- e. **Information Access Division (IAD)** supports technologies used to access complex information relating to human action, behavior, communication, or characteristics. Through collaborations with industry, academia, and the federal government, IAD enables the advancement of these technologies for commercial use. IAD provides guidelines and measurement methods to accelerate this evolution. Specific objectives of interest in these areas of research include: Measurement approaches for trustworthy and responsible AI, including human-centered approaches; Biometrics for Forensics, Quality, Synthetic Data Generation, and Digital Identity; Analytics and methods addressing (Synthetic) Content authentication and Provenance in the areas of Generative AI and Deepfake Detection; Human-Centered Cybersecurity; Information Extraction; Modeling and Generating Language and Video Content; Search, Recommendation and Information Retrieval; Research into the use of Foundational Models to support Information Access Activities; Watermarking and Information Provenance.
- f. **Software and Systems Division (SSD)** works with industry, academia, and other government agencies to accelerate the development and adoption of correct, reliable, and testable software. This collaborative effort leads to increased trust and confidence in deployed software and methods to develop better standards and testing tools. SSD focuses on advances in state-of-the-art software testing and facilitates the transfer of applications and technologies into

national infrastructures and commercial sectors. SSD also collaborates with other government agencies to develop Computationally-Enabled Measurements that leverage data-driven approaches, Artificial Intelligence & Machine Learning (symbolic, neural networks, and generative AI), and High-Performance Computing. Specific objectives of interest in these areas of research include artificial intelligence, digital forensics; data analytics; data storage; cloud computing; health IT; high-performance computing; image analytics; IoT for health applications; material genome initiative; medical device interoperability; software assurance; systems biology; and systems interoperability.

- g. Statistical Engineering Division (SED)** conducts fundamental and applied statistical research on problems in metrology; develops and applies best practices for the characterization of measurement uncertainty; and implements modern methods and techniques for survey and experiment design, data analysis, statistical modeling, and probabilistic inference using computer software. Specific objectives of interest in these areas of research include statistics for metrology (with an emphasis on the design and analysis of experiments for interlaboratory comparisons, calibration, or reference material certification); statistical methods in multiple domains including forensic science, informatics, communications technology, and next-generation clock metrology; statistical aspects of machine learning and artificial intelligence; and enhanced access to statistical analysis methods via software.

## **8. International and Academic Affairs Office (IAAO) Grant Program**

The statutory authority for the IAAO Grant Program is 15 U.S.C. § 272(b) and (c) and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The IAAO Grant Program has been designed to support activities that strengthen and enhance the international metrology community and promote U.S. innovation and industrial competitiveness in support of the NIST mission. NIST seeks to promote the efforts of International Organizations with a metrology mission, Regional Metrology Organizations, National Metrology Institutes and Designated Institutes to bolster the global metrology system and regional metrology cooperation and enhance quality infrastructure. The IAAO Grant Program will support scientific, industrial and/or legal metrology activities and related quality infrastructure endeavors with an emphasis on the Western Hemisphere, Asia Pacific, and Africa. Financial support may be provided for conferences, workshops, or other technical meetings (in-person and virtual) that are relevant to the mission of the IAAO. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program. Additional information about the IAAO and IAAO Programs may be obtained at

[www.nist.gov/iaao](http://www.nist.gov/iaao). All applications submitted to the IAAO Grant Program must be in accordance with the program objectives listed above. The contact person for the IAAO Grant Program is Magdalena Navarro, and she may be reached by e-mail at [magdalena.navarro@nist.gov](mailto:magdalena.navarro@nist.gov).

## 9. Material Measurement Laboratory (MML) Grant Program

The MML Grant Program's statutory authority is 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1(e), and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The MML supports the NIST mission by serving as the national reference laboratory for measurements in the chemical, biological, and material sciences. The MML is entrusted with developing, maintaining, advancing, and enabling measurement systems in these areas for the nation. The 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 certified reference materials, critically evaluated data and other programs that help assure measurement quality.

The MML Grant Program provides financial assistance to support the conduct of research or a recipient's portion of collaborative research in the following fields: materials science and engineering, materials measurement science, biosystems and biomaterials, biomolecular measurements, chemical sciences, and applied chemicals and materials.

All applications submitted to the MML Grant Program must be in accordance with the program objectives set forth below. The appropriate MML Program Manager for each MML field of research described in this section may be contacted for clarification of the program objectives. The MML Grant Program contact person is Jody Sandel and she may be reached at (303) 497-4695 or by e-mail at [jody.sandel@nist.gov](mailto:jody.sandel@nist.gov)

**a. MML Office.** Financial support may be provided for education and outreach programs, conferences, workshops, or other technical research meetings that are relevant to the mission of the MML. Financial support may also be provided to organizations sponsoring conferences, workshops, or other technical events that are relevant to the mission of the MML. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program. The contact person for this office is Jody Sandel, and she may be reached at (303) 497-4695 or by e-mail at [jody.sandel@nist.gov](mailto:jody.sandel@nist.gov).

**b. Office of Data and Informatics.** The primary objective is to support

researchers and institutions in the biological, chemical, and materials sciences who need to leverage both large and information-rich data sets now common in many disciplines. The division supports national needs such as the Materials Genome Initiative (MGI) and biological and chemical data integration, as well as the modernization of current Standard Reference Data for use in state-of-the-art computer paradigms (i.e., virtual computing, parallel analysis, interoperability, semantic web, etc.) and the development of next generation NIST reference data services. The division also facilitates the MML's adherence to the government open-data policy by providing guidance and assistance in the best practices for archiving and annotating research and data outputs. The Office of Data and Informatics (ODI) identifies, coordinates, integrates, and builds the capabilities needed to meet data challenges and leverage data-driven research opportunities (including Big Data and data.gov), particularly those that relate to the biological, chemical, and materials science communities within the MML. As a service-oriented organization, the ODI adds value to data activities by providing guidance, assistance, and resources for optimizing the discoverability, usability, and interoperability of data products in ways that support NIST scientists and stakeholders. In addition, by fostering collaboration and coordination among MML domain experts and other data specialists at NIST, the ODI supports MML research programs where advanced manipulation, visualization, and analysis of large data sets are needed to advance knowledge. The ODI has also developed the Research Data Framework, which documents the research data ecosystem and provides a guide to organizations and individuals with a role in research data management. The contact person for this division is Robert Hanisch; he may be reached at (301) 975-3463 or by e-mail at [robert.hanisch@nist.gov](mailto:robert.hanisch@nist.gov).

- c. Materials Science and Engineering Division.** The primary objective is to collaborate or conduct research consistent with division programs that provide the measurement science, standards, technology, instrumentation, and data required to advance materials technology and manufacturing processes, enabling those engaged in the materials science and engineering enterprise to create innovative, successful products that solve problems in areas such as microelectronics, transportation, civil infrastructure, biopharmaceuticals, energy, and the environment. Division programs support the development and application of soft materials, metal alloys, and inorganic functional materials to include: multi-phase fluids and gels along with constituent components such as polymeric molecules, nanoparticles, colloids, and fibers; the processing and manufacturing of polymers into functional forms that include thin films, nanostructures, and shaped bulk solids; the physical, chemical, and mechanical properties of solid polymers; the electrical, chemical, and magnetic properties of nanostructured inorganic materials including magnetic thin films and nanoparticles, and 2-dimensional topological



materials; electrochemical and surface science measurements and models for advancing wet chemical manufacturing and energy conversion technologies; mechanical properties and performance of advanced metal alloys, particularly as related to thermo-mechanical processing/manufacturing and application-relevant operating conditions; thermodynamic, physical property, and kinetic data, models, and associated experimental techniques, including density functional theory and interatomic potential calculations, and methods and data to predict phase transformations, microstructure evolution, and properties of advanced materials; additive manufacturing processes for metallic and polymeric materials; and infrastructure and tools to support the production, availability, and discovery of materials data including automated experimentation and artificial intelligence/machine learning (AI/ML) methods. The contact person for this Division is Mark VanLandingham, and he may be reached at (301) 975-8795 or by e-mail at [mark.vanlandingham@nist.gov](mailto:mark.vanlandingham@nist.gov).

**d. Materials Measurement Science Division.** The primary objective is to collaborate or conduct research consistent with division programs in support of measurement science, measurement standards, and measurement technology required to enable world-leading characterization of advanced materials in support of the nation's needs for determining the composition, structure, and properties of materials. The division develops state-of-the-art instrumentation, methods, models, and software to measure materials accurately and precisely over a range of length and time scales. The division provides benchmarking and validation of emerging materials analysis methods, and disseminates reference materials, standards, and scientific data to foster innovation and advance a wide range of technologies. Division programs include: advanced microscopies, microanalysis and imaging; nanomaterials and nanodevice research; solid sorbents characterization; nano calorimetry; high throughput materials science; ; nanomechanical properties; synchrotron science for materials characterization; materials structure and dynamics; modeling and predicting materials structure and properties; chemical detection technologies and standards for forensics and homeland security applications; and materials science and standards for law enforcement equipment and technologies. The contact person for this Division is Dave Holbrook, and he may be reached at (301) 975-5202 or by email at [dave.holbrook@nist.gov](mailto:dave.holbrook@nist.gov).

**e. Biosystems and Biomaterials Division.** The primary objective is to collaborate with or conduct research consistent with Division projects in measurement science, standards, and technology to build confidence in bio metrology and foster responsible biotechnology and biomanufacturing innovation. The Division supports quantitative measurement and standardization for methods such as advanced imaging and spectroscopy, flow cytometry, genomic/metagenomic and omics measurements, as well as



the design and validation of bioassays. The Division further supports the development of advanced measurement capabilities and integration of automation and AI/ML to accelerate quantitative and/or predictive engineering biology. Current priorities include precision measurements and predictive engineering of biological systems to support broad biotechnology sectors, including precision medicine, advanced therapy, bio surveillance, cell-based manufacturing, new technologies enabled by genome editing, and supply chain resilience. The Division also leads and contributes to the development of global standards as well as efforts to support their dissemination and broad adoption. The contact person for this division is Sheng Lin-Gibson, and she may be reached at (301) 975-6765 or by email at [sheng.lin-gibson@nist.gov](mailto:sheng.lin-gibson@nist.gov).

- f. Biomolecular Measurement Division.** The primary objective is to collaborate with or conduct research consistent with the division activities in measurement science, standards, technology, and data required to support the nation's needs in determining the composition, structure, quantity, and function of biomolecules. In partnership with U.S. industry, government agencies, and scientific institutions, the division performs fundamental and applied research on the measurement of macromolecules such as proteins and nucleic acids, as well as peptides, glycans, metabolites, lipids, and natural products. Specific areas of interest include development of measurement methods, standards, reference data, and technologies for applications involving clinical diagnostics for healthcare; characterization, development, and manufacturing of biotherapeutics; proteomics, metabolomics, and drug discovery; and genetic testing in agriculture, law enforcement, and clinical diagnostics. The contact person for this division is Rebecca Zangmeister, and she may be reached at (301) 975-4912 or by email at [rebecca.zangmeister@nist.gov](mailto:rebecca.zangmeister@nist.gov).
- g. Chemical Sciences Division.** The primary objective is to collaborate with or conduct research consistent with the division activities in support of the measurement science, reference standards, technology, data and chemical informatics required to support the nation's needs in the determination of chemical composition and chemical structure of organic, and inorganic species in the gas and condensed phases, and in the measurement of a wide variety of physicochemical properties and processes, including chemical reactivity and mechanisms, as well as thermochemical and kinetics properties. In partnership with U.S. industry, government agencies, and academic scientific institutions, the Division performs fundamental and applied research to advance and create state-of-the-art chemical measurement capabilities, theory, and computational methods for quantitative measurements and sensing of solids, liquids, gases, plasmas, transient species, and multicomponent matrices. The Division also formulates and disseminates reference materials and measurement standards and critically

evaluates reference data and data science algorithms as applied to chemical metrology. These activities support the chemical science, technology, and engineering enterprise with the intent of fostering innovation and confidence in measurements and technologies used in a wide range of applications, including chemical analysis, gas sensing metrology, clinical health assessment, food and nutritional assessment, sensing, manufacturing, and energy transformation. The contact person for this division is Carlos Gonzalez, and he may be reached at (301) 975-2483 or by e-mail at [carlos.gonzalez@nist.gov](mailto:carlos.gonzalez@nist.gov).

- h. Applied Chemicals and Materials Division.** The primary objective is to collaborate with or conduct research consistent with division programs in the measurement science, standards, technology, instrumentation, models, and data required to support the nation's needs for design, production, and assessment of chemical and material products. In partnership with U.S. industry, other government agencies and other scientific institutions, the division provides thermophysical and mechanical properties; analysis of reliability and performance of materials and structures; and information systems for chemical and materials engineering, with the intent of fostering innovation and confidence in the nation's physical and energy infrastructures, advancing additive manufacturing, enabling advances in chemical manufacturing and in electronics, and promoting sustainability, public safety and human health. The contact person for this division is John Perkins, and he may be reached at (303) 497-6476 or by e-mail at [john.perkins@nist.gov](mailto:john.perkins@nist.gov).

## **10. NIST Center for Neutron Research (NCNR) Grant Program**

The statutory authority for the NCNR Grant Program is 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1(e) and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The NCNR Grant Program provides financial assistance to support the conduct of research or a recipient's portion of collaborative research involving neutron scattering and the development of innovative technologies that advance the state-of-the-art in neutron research.

Financial support may be provided for conferences, workshops, or other technical meetings that are relevant to the mission of the NCNR. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program.

Additional information about the NCNR and NCNR Programs may be obtained at [www.nist.gov/ncnr](http://www.nist.gov/ncnr).

All applications submitted to the NCNR Grant Program must be in accordance with the program objectives: to create novel approaches to advance high resolution cold and thermal neutron scattering research; to develop new applications of neutron scattering to physics, chemistry, and macromolecular and materials research; nuclear engineering research on neutron sources and neutron delivery systems; and to support the development of innovative technologies relevant to neutron research, including, for example, high resolution two-dimensional neutron detectors, neutron monochromators, and neutron focusing and polarizing devices. The contact person for the NCNR Grant Program who may be contacted for clarification of the program objectives is Ronald Jones, and he may be reached at (301) 975-4624 or by e-mail at [ronald.jones@nist.gov](mailto:ronald.jones@nist.gov).

## 11. Physical Measurement Laboratory (PML) Grant Program

The statutory authority for the PML Grant Program is 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1(e), 15 U.S.C. § 7501 et seq., and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The PML Grant Program provides financial assistance to support the conduct of research or a recipient's portion of collaborative research consistent with the PML mission to support research in the broad areas of mechanical metrology, semiconductors, ionizing radiation physics, medical physics, biophysics, neutron physics, atomic physics, optical technology, optoelectronics, electromagnetics, time and frequency, quantum physics, weights and measures, quantum electrical metrology, temperature, pressure, flow, far UV physics, nanotechnology, and metrology with synchrotron radiation.

Additional information about the PML and PML Programs may be obtained at [www.nist.gov/pml](http://www.nist.gov/pml).

All applications submitted to the PML Grant Program must be in accordance with the program objectives listed below. The appropriate PML Program Manager for each PML field of research that follows may be contacted for clarification of the program objectives. The contact person for the PML Grant Program is Vanessa Velisek, and she may be reached at (202) 768-4502 or by e-mail at [vanessa.velisek@nist.gov](mailto:vanessa.velisek@nist.gov).

- a. **PML Office.** Financial support may be provided for students to attend education and outreach programs, conferences, workshops, or other technical research meetings that are relevant to the mission of the PML. Financial support may also be provided to organizations sponsoring

conferences, workshops, studies, education and outreach programs, or other technical events that are relevant to the mission of the PML. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program. Support is generally provided in increments of \$5,000 per award. The contact person for this office is Vanessa Velisek, and she may be reached at (202) 768-4502 or by e-mail at [vanessa.velisek@nist.gov](mailto:vanessa.velisek@nist.gov).

- b. Office of Weights and Measures.** The primary objective is to provide funding for research in the broad areas of documentary standards and legal metrology. Specific objectives of interest in this area include evaluation of the impact of legal metrology on commerce, support for specific standards related activities, and the development of a national weights and measures training program. The contact person for this office is Katrice Lippa, and she may be reached at (301) 975-3116 or by e-mail at [katrice.lippa@nist.gov](mailto:katrice.lippa@nist.gov).
- c. Microsystems and Nanotechnology Division.** The primary objective is to collaborate with or conduct research consistent with the Division's programs in the areas of measurement science and technology that advance nanofabrication and nanomanufacturing process development, and the application of these capabilities to Division programs in integrated photonics, plasmonics, metasurfaces, nano- and micro-electromechanical systems, microscopy standards, nanoparticle characterization, biomolecular and cell metrology, micro physiological systems, and flow metrology. Application areas include advanced semiconductor manufacturing, position navigation and timing, quantum information interfaces, therapeutic assessment and diagnostics, and biomolecular assembly. The contact for this division is J. Alexander Liddle, and he may be reached at (301) 975-6050 or via e-mail at [james.liddle@nist.gov](mailto:james.liddle@nist.gov).
- d. Radiation Physics Division.** The primary objective is to collaborate with or conduct research consistent with the division's programs in the areas of ionizing radiation including x-ray and gamma-ray measurements and dosimetry, neutron physics, radioactivity measurements supporting the protection of radiation workers and the general public, therapy and diagnosis of disease, nuclear medicine and medical imaging, radiography, industrial processing, nuclear energy, advanced energy production and distribution , national defense and security, space science, and environmental metrology. The contact person for this division is Alan Thompson, and he may be reached at (301) 975-4666 or by e-mail at [alan.thompson@nist.gov](mailto:alan.thompson@nist.gov).
- e. Nanoscale Device Characterization Division.** The primary objective is to collaborate with or conduct research consistent with the division's programs to develop and advance the measurement science and fundamental knowledge essential to characterizing nano- and atom-scale engineered

materials and solid-state devices for innovation in information processing, sensing, and future quantum technologies. The contact person for this division is David Gundlach, and he may be reached at (301) 975-2048 or by e-mail at [david.gundlach@nist.gov](mailto:david.gundlach@nist.gov).

- f. Quantum Measurement Division.** The primary objective is to collaborate with or conduct research consistent with division basic and applied research programs, including precision measurements; mass, force, acoustics, vibration, and electrical metrology; DC and AC power metrology; electronic instrumentation; quantum voltage, resistance, and current standards; measurements of basic atomic properties including new metrology techniques in atomic spectroscopy; Raman spectroscopy measuring fundamental quantum processes in ultra-cold atomic systems including Bose-Einstein condensates and Fermi degenerate gases, nanophotonic systems, quantum dots, single photon devices, and quantum materials relevant to these systems; and advancing quantum information science and laser cooling and their broad applications to measurement science and measurement beyond the standard quantum limit. The contact persons for this Division are, Gretchen Campbell, who may be reached at (301) 405-09374 or by e-mail at [gretchen.campbell@nist.gov](mailto:gretchen.campbell@nist.gov), and Gerald Fraser at (301)975-3797 or by e-mail at [gerald.fraser@nist.gov](mailto:gerald.fraser@nist.gov).
- g. Sensor Science Division.** The primary objective is to collaborate with or conduct research consistent with the division's measurement and standards programs in temperature, humidity, pressure, vacuum, flow, photometry length and dimension, surface topography, , photonic sensors, tool mark forensics, space weather metrology, optical properties of materials, synchrotron radiation, and optical radiation and their application to addressing national needs. The contact person for this Division is Maria E. Nadal, who may be reached at (301) 975-4632 or by e-mail at [maria.nadal@nist.gov](mailto:maria.nadal@nist.gov).
- h. Applied Physics Division.** The primary objective is to collaborate with or conduct research consistent with the division's programs in areas including laser metrology, superconducting sensor array fabrication and application, quantum information and computing, single photonics, medical imaging, radio-frequency and microwave technology, advanced spectroscopic measurements, terahertz imaging and metrology, laser applications, compound semiconductor nanophotonics, spin electronics and molecular and bio-photonics. The contact person for this Division is Kristan Corwin, who may be reached at (303) 497-4411 or by e-mail at [kristan.corwin@nist.gov](mailto:kristan.corwin@nist.gov).
- i. Quantum Sensors Division.** The primary objective is to collaborate with or conduct research consistent with the division's programs in areas including

superconducting detector arrays and systems for X-ray line metrology and advanced materials research, gamma-ray detection for nuclear forensics and medicine; astrophysics and cosmology; superconductive electronics circuit design; superconducting quantum computing and information processing, and the science and engineering of advanced cryogenics. The contact person for this Division is Joel N. Ullom, who may be reached at (303) 497-4408 or by e-mail at [joel.ullom@nist.gov](mailto:joel.ullom@nist.gov).

- j. **Time and Frequency Division.** The primary objective is to collaborate with or conduct research consistent with the division's basic and applied research programs in the areas of time and frequency standards, phase noise measurements, network synchronization, ion storage, quantum information, optical atomic standards, and frequency measurements in support of future standards, optical frequency combs, chip-scale atomic clocks, magnetometers and related devices, time and frequency dissemination services, and time and frequency applications such as navigational systems and telecommunications. The contact person for this Division is Elizabeth Donley, and she may be reached at (303) 497-5173 or by e-mail at [elizabeth.donley@nist.gov](mailto:elizabeth.donley@nist.gov).
- k. **Quantum Physics Division.** The primary objective is to collaborate with or conduct research consistent with the division's basic and applied research programs in the areas of quantum information science and technology, quantum-based precision measurements, quantum degenerate gases of atoms and molecules, chemical physics, and biophysics. The contact person for this Division is Andrew Wilson, and he may be reached at (303) 492-6806 or by e-mail at [andrew.wilson@nist.gov](mailto:andrew.wilson@nist.gov).

## 12. Special Programs Office (SPO) Grant Program

The statutory authority for the SPO Grant Program is 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1(e), and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The SPO Grant Program provides financial assistance to support the conduct of research or a recipient's portion of collaborative research consistent with the SPO mission for special programs in broad areas of critical national need and in response to federal mandates that cut across NIST's scientific and technical mission-focused laboratory programs such as forensic science research, foundation studies, and standards and greenhouse gas measurements research and standards. Additional information about the SPO and SPO Programs may be obtained at <https://www.nist.gov/special-programs-office-spo>.



All applications submitted to the SPO Grant Program must be in accordance with the program objectives listed below. The appropriate SPO Program Manager for each SPO field of research described in this section may be contacted for clarification of the program objectives. The contact person for the SPO Grant Program is Corrine Lloyd, and she may be reached at (301) 975-8762 or by e-mail at [corrine.lloyd@nist.gov](mailto:corrine.lloyd@nist.gov).

- a. Special Programs Office.** Financial support may be provided to attend education and outreach programs, conferences, workshops, or other technical research meetings that are relevant to the mission of the SPO. Financial support may be provided for conferences, workshops, or other technical research meetings that are relevant to the mission of SPO. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program. The contact person for this office is Corrine Lloyd; she may be reached at (301) 975-8762 or by e-mail at [corrine.lloyd@nist.gov](mailto:corrine.lloyd@nist.gov).
- b. Greenhouse Gas (GHG) Measurements Research and Standards Program.** The primary objective of this program is to develop or extend internationally recognized measurements, standards, and methods to accurately quantify greenhouse gas (GHG) emissions in urban and regional settings. Atmospheric methods utilize accurate measurement of GHG mole fractions in the atmosphere, while the analyses involved are often enhanced by additional measurements of interest in air quality research, e.g., carbon monoxide. Supported research aims to improve the accuracy of science-based quantification of anthropogenic emissions and biogenic exchange of CO<sub>2</sub> and CH<sub>4</sub> with the atmosphere. Areas of interest include 1) quantification of GHG emissions from stationary sources; 2) coordinated measurement and modeling tools to better quantify anthropogenic and biospheric atmospheric exchange; 3) remote sensing of atmospheric GHG concentrations and their attendant supporting analyses and observations; and 4) measurement capabilities to further understanding of GHG transport in the lower atmosphere. Additional information about the SPO GHG Research and Standards Program may be obtained at <https://www.nist.gov/spo/greenhouse-gas-measurements-program>. The contact person for this program is Anna Karion; she may be reached at (202) 329-6621 or by e-mail at [anna.karion@nist.gov](mailto:anna.karion@nist.gov).
- c. Forensic Science Research and Foundational Studies Program.** The primary objective of this program is to conduct and coordinate forensic science research and foundational studies and to provide technical services to address the needs of the forensic science community. The program focuses on creating new materials standards; verifying methodology; and evaluating new technologies for forensic science disciplines including the

following: digital evidence, forensic genetics, biometrics, firearms and toolmarks, drugs and toxins, statistics, and trace analysis. The program also facilitates knowledge exchange and identifies best practices for the forensic science community. Additional information about the SPO Forensic Science Research and Foundational Studies Program is available at <https://www.nist.gov/spo/forensic-science-program>. The contact person for this program is Robert Ramotowski; he may be reached at (301) 975-4772 or by e-mail at [robert.ramotowski@nist.gov](mailto:robert.ramotowski@nist.gov).

- d. Forensic Science Standards Program.** The primary objective of this program is to strengthen the nation's use of forensic science by facilitating the development and use of technically sound standards and guidelines and promoting their adoption and use throughout the forensic science community, especially by forensic science practitioners and other forensic science service providers. NIST leverages the voluntary consensus process to generate technical standards for the forensic science community through the Organization of Scientific Area Committees (OSAC) for Forensic Science. OSAC achieves this by coordinating the development of technically sound forensic science standards through the U.S. standards system and by enabling participation from state, local and federal government, academic institutions, and private sector organizations.

This program supports interlaboratory comparisons, forensic science discipline-specific process maps, forensic science standards-related training materials, work products that enable more rapid implementation of standards listed on the OSAC Registry, and workshops to address specific forensic science standards gaps. Additional information about the SPO Forensic Science Standards Program is available at <https://www.nist.gov/spo/forensic-science-standards-program>. The contact person for this program is John Paul Jones II; he may be reached at (301) 975-2782 or by e-mail at [john.jones@nist.gov](mailto:john.jones@nist.gov).

### 13. Standards Coordination Office (SCO) Grant Program

The statutory authority for the SCO Grant Program is 15 U.S.C. § 272(b) and (c), 15 U.S.C. § 278g-1(e), and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

**Program Description:** The SCO plays a unique role in the Federal government by coordinating Federal standards and conformity assessment activities; supporting U.S. industry with standards-related tools and information necessary to effectively compete in the global marketplace; and serving as a resource to Federal agencies and the private sector on the U.S. approach to standards and conformity assessment. Information about the SCO and SCO programs is



available at <https://www.nist.gov/standardsgov>.

The SCO Grant Program provides financial assistance to support the broad areas of standards development and conformity assessment activities, coordination activities with the private sector and federal agencies on standards activities and programs, and other standards-related activities. Financial support may be provided for the development of standards-related training materials, publications, policy analysis, studies, and related research and information services. Areas of interest include the development of pre-standard documents for critical and emerging technologies. Financial support may be provided to organizations sponsoring conferences, workshops, experiential learning programs, or other technical events that are relevant to the mission of the SCO. Financial support may also be provided to accredited Institutions of Higher Education (IHEs) located in the U.S. or its territories to sponsor and for staff and students to attend experiential learning programs, conferences, workshops, or other standards-related meetings that are relevant to the mission of the SCO. However, NIST cannot be an official sponsor or co-sponsor for any event funded through this program. All applications submitted to the SCO Grant Program must be in accordance with the program objectives listed above. The contact person for the SCO Grant Program, who may be contacted for clarification of the program objectives, is Mary Jo DiBernardo, and she may be reached at (301) 975-5503 or by e-mail at [maryjo.dibernardo@nist.gov](mailto:maryjo.dibernardo@nist.gov).

## **II. Federal Award Information**

- 1. Funding Instrument.** The funding instruments used in these programs will be grants or cooperative agreements, as appropriate. Where cooperative agreements are used, the nature of NIST's "substantial involvement" will generally include collaboration with the recipient in executing the approved scope of work, in accordance with 2 CFR § 200.1.
- 2. Multi-Year Funding Policy.** When an application for a multi-year award is approved, funding will usually be provided for only the first year of the project. 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 individual MSE research grant programs, and the availability of funds.
- 3. Funding Availability.** The availability of funds depends upon actual authorization of funds, programmatic needs, and other costs expected to be incurred by individual divisions within each laboratory, center, or office. If funds are identified as available for financial assistance, those funds may be

awarded to meritorious applications as determined by the applicable program's review and selection process (see Section V.2. of this NOFO).

- a. **Associate Director for Innovation and Industry Services (ADIIS) Grant Program.** In FY 2025, the ADIIS anticipates funding individual projects in the \$5,000 - \$500,000 per year range and with project performance periods of up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of the NOFO).
- b. **Associate Director for Laboratory Programs (ADLP) Grant Program.** In FY 2025, the ADLP anticipates funding individual projects in the \$5,000 - \$5,000,000 per year range and with project performance periods of up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of this NOFO).
- c. **CHIPS Research & Development Office (CRDO) Grant Program.** In FY 2025, the CRDO anticipates funding individual projects in the \$5,000 - \$250,000 per year range with project performance periods that do not extend beyond September 30, 2027, in accordance with the CHIPS Act of 2022.
- d. **Communications Technology Laboratory (CTL) Grant Program.** In FY 2025, the CTL anticipates funding individual projects in the \$3,000 - \$2,500,000 per year range and with project performance periods for up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of this NOFO).
- e. **Engineering Laboratory (EL) Grant Program.** In FY 2024, the EL anticipates funding individual projects in the \$5,000 - \$500,000 per year range and with project performance periods of up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of this NOFO).
- f. **Fire Research (FR) Grant Program.** In FY 2025, the FR Grant Program anticipates funding individual projects in the \$100,000 per year range and with project performance periods of up to three (3) years, consistent with the multi-year funding policies (see Section II.2. of this NOFO).
- g. **Information Technology Laboratory (ITL) Grant Program.** In FY 2025, the ITL anticipates funding individual projects in the \$10,000 - \$500,000 per year range and with project performance periods of up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of this NOFO).

- h. International and Academic Affairs Office (IAAO) Grant Program.** In FY 2025, the IAAO anticipates funding individual projects in the \$50,000 - \$200,000 per year range and with project performance periods of up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of this NOFO).
- i. Material Measurement Laboratory (MML) Grant Program.** In FY 2025, the MML anticipates funding individual projects in the \$5,000 - \$12,000,000 per year range and with project performance periods of up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of this NOFO).
- j. NIST Center for Neutron Research (NCNR) Grant Program.** In FY 2025, the NCNR anticipates funding new, individual projects in the \$10,000 - \$200,000 per year range and with project performance periods of up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of this NOFO).
- k. Physical Measurement Laboratory (PML) Grant Program.** In FY 2025, the PML anticipates funding individual projects in the \$5,000 – \$250,000 per year range and with project performance periods of up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of this NOFO).
- l. Special Programs Office (SPO) Grant Program.** In FY 2025, the SPO anticipates funding individual projects in the \$5,000 - \$2,000,000 per year range with project performance periods of up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of this NOFO).
- m. Standards Coordination Office (SCO) Grant Program.** In FY 2025, the SCO anticipates funding individual projects in the \$25,000 - \$500,000 per award range and with project performance periods of up to five (5) years, consistent with the multi-year funding policy (see Section II.2. of the NOFO).

### **III. Eligibility Information**

- 1. Eligible Applicants.** Eligibility for all programs listed in this NOFO is open to all non-Federal entities. Eligible applicants include institutions of higher education, non-profit organizations, for-profit organizations, state and local governments, Indian tribes, hospitals, foreign public entities, and foreign governments. NIST seeks to collaborate with a wide range of organizations and encourages minority-serving institutions of higher education and community colleges to apply. Please note that individuals and unincorporated sole proprietors are not considered

“non-Federal entities” and are not eligible to apply under this NOFO.

2. **Cost Sharing or Matching.** The MSE research grant programs do not require cost sharing.

#### IV. **Application and Submission Information**

##### 1. **Address to Request Application Package.**

The application package is available at [www.grants.gov](http://www.grants.gov) under Funding Opportunity Number 2025-NIST-MSE-01.

##### 2. **Content and Form of Application Submission for all programs listed in this NOFO.**

###### a. **Required Forms and Documents**

- (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.

SF-424 (R&R), Item 18. If the SF-LLL, Disclosure of Lobbying Activities form (item (6) below) is applicable, attach it to field 18.

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 on Grants.gov, [grants.gov/forms/forms-repository/r-r-family](http://grants.gov/forms/forms-repository/r-r-family).

- (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 (9) below) should be attached to field L.

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. Instructions for completing the Research & Related Budget (Total Fed + Non-Fed) form is available in the [R&R Family Section](#) of Grants.gov, as well as at the NIST Financial Assistance Agreements Office SF-424 Research & Related (R&R) Application Package Guidance.

**(3) CD-511, Certification Regarding Lobbying.** Enter “2025-NIST-MSE-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), Resume(s) or CV(s) (item (7) below) the Indirect Cost Rate Agreement (item (9) below), the Data Management Plan (item (10) below), and the Current and Pending Support Form (item (12) below). Instructions for completing the Research and Related Other Project Information can be found in [grants.gov/forms/forms-repository/r-r-family](https://grants.gov/forms/forms-repository/r-r-family) by scrolling down to Research And Related Other Project Information.

**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 responsive to the applicable program description(s) (see Section I. of this NOFO) and the evaluation criteria (see Section V.1. of this NOFO).

This document is **limited to twenty-five (25) pages** and must consist of two parts: the **Cover Page** and the **Project Narrative** itself. The page limit

includes Cover Page; Table of Contents (if included); Project Narrative with all required information, including figures, graphs, tables, images, and pictures.

**A. The Cover Page** must consist of three (3) elements:

- I) The name and address of the applicant institution, and the name, address, and contact information for the application's Principal Investigator;
- II) The specific component MSE research grant program to which the application is being submitted, using the following choices:
  - a. Associate Director for Innovation and Industry Services (ADIIS);
  - b. Associate Director for Laboratory Programs (ADLP);
  - c. CHIPS Research & Development Program Office (CRDO);
  - d. Communications Technology Laboratory (CTL);
  - e. Engineering Laboratory (EL);
  - f. Fire Research (FR);
  - g. Information Technology Laboratory (ITL);
  - h. International and Academic Affairs Office (IAAO);
  - i. Material Measurement Laboratory (MML);
  - j. NIST Center for Neutron Research (NCNR);
  - k. Physical Measurement Laboratory (PML);
  - l. Special Programs Office (SPO); and
  - m. Standards Coordination Office (SCO).

Any applicant that does not wish its application to be considered by other NIST programs should indicate on its application that it would like consideration of the project to be limited to the program specified on the application.

III) Statement of Relevance and Benefit to the General Public.

Using no more than three sentences, describe the relevance and benefit of the research proposed in this application to the public. This statement should be succinct and use plain language that can be understood by a general lay audience.

**B. The Project Narrative.**

The Project Narrative should describe in depth the scope of the proposal, its goals, the methods and equipment to be used, its schedule, the personnel working on the project and the location of the work that will be

performed (specifying whether any NIST facilities, as required by Section VI.2.i. of this NOFO, or NIST equipment will be necessary), the qualifications of the personnel working on the project, and the institutional capabilities of the applicant.

**(7) Resume(s) or CV(s).** Resumes are required for all key personnel, including the principal investigator. Resumes are limited to two (2) pages per individual.

**(8) 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](#), which apply to awards in this program.

Information needed for each budget 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 \$10,000 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. Applicants should provide at least two (2) quotes, if available, for equipment costing \$25,000 or more. If two (2) quotes are not available, please provide a statement as to why two (2) quotes are not available. Any items that do not meet the threshold for equipment can be included under the Materials and Supplies line item in Section F, Other Direct Costs.

**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 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 or 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. Subrecipients 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.

**G. 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.a.(9) of this NOFO.

**(9) 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 agency. If the rate was not established by a cognizant 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 agency, the applicant will be required to obtain such a rate in accordance with the [Department of Commerce Financial Assistance General Terms and Conditions](#), dated October 1, 2024.

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 15 percent of modified total direct costs (MTDC). Applicants proposing a 15 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 use of the de minimis rate and will not have the opportunity to negotiate an indirect cost rate with NIST.

**(10) Data Management Plan.** Consistent with NIST Policy 5700.00<sup>7</sup>, *Managing Public Access to Results of Federally Funded Research*, and NIST Order 5701.00<sup>8</sup>, *Managing Public Access to Results of Federally Funded Research*, applicants proposing projects that include the conduct of research must include a Data Management Plan (DMP).

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<sup>7</sup> [https://www.nist.gov/system/files/documents/2018/06/19/final\\_p\\_5700.pdf](https://www.nist.gov/system/files/documents/2018/06/19/final_p_5700.pdf)

<sup>8</sup> [https://www.nist.gov/system/files/documents/2019/11/08/final\\_o\\_5701\\_ver\\_2.pdf](https://www.nist.gov/system/files/documents/2019/11/08/final_o_5701_ver_2.pdf)

**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 generate data; a summary of the types of data generated by the identified activities; a plan for storage and maintenance of the data generated by the identified activities, 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: [Information for Applicants and Awardees](#). 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, 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) 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.”

- (12) 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 and reference the guidance provided as it contains information to assist with accurately completing the form.

#### **b. Attachment of Required Documents**

Items IV.2.a.(1) through IV.2.a.(5) 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 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), Resume(s) or CV(s), should be 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.(8), 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.(9), the Indirect Cost Rate Agreement; IV.2.a.(10), the Data Management Plan; and IV.2.a.(12), 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.(11), 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 that permit the 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) were transferred successfully. Applicants using Grants.gov 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 "Download Submitted Forms and Applications" option found at "[Download Submitted Forms and Applications](#)" 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.

If the directions found on the [Grants.gov Online Help](#) page 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](mailto: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 Track My Application](#) page. 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.*

### **c. Application Format**

- (1) E-mail and facsimile (fax) submissions.** Will not be accepted.
- (2) Figures, Graphs, Images, and Pictures.** Should be of a size that is easily readable or viewable and may be landscape orientation.
- (3) Font.** Easy to read font (10-point minimum). Smaller type may be used in figures, margins, and tables but must be clearly legible.
- (4) Page Limit.** The Project Narrative for Applications is limited to twenty-five (25) pages:  
  
**Page limit includes** Cover Page, Table of contents (if included), Project Narrative with all required information, including figures, graphs, tables, images, and pictures.  
  
**Page limit excludes:** SF-424 (R&R) Application for Federal Assistance; SF-LLL Disclosure of Lobbying Activities; CD-511 Certification Regarding Lobbying; Resume(s) or CV(s); Budget Narrative; Indirect Cost Rate Agreement; Data Management Plan; and Current and Pending Support Form.
- (5) Page layout.** The Project Narrative must be in portrait orientation.
- (6) Page size.** 21.6 centimeters by 27.9 centimeters (8 ½ inches by 11 inches).
- (7) Page numbering.** Number pages sequentially.
- (8) Application Language.** 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.

### **d. 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.

**e. Pre-Applications.**

NIST is not accepting pre-applications or white papers under 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 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.** All NIST MSE Research Grant Program applications will be considered on a continuing/rolling basis as they are received.

To be considered for funding in the current fiscal year, applications must be received by 5:00 p.m. Eastern Time on May 1st. Applications received after this deadline may be processed and considered for funding in the current fiscal year or in the next fiscal year, subject to the availability of funds.

When developing your submission timeline, please keep in mind that (1) all applicants are required to have current registrations in the System for Award Management (SAM.gov) and Grants.gov; (2) the free annual registration process in the electronic System for Award Management (SAM.gov) (see Sections IV.3. and IV.7.a.(1).(b). of this NOFO) generally takes between three and five business days but can take more than three weeks; and (3) applicants will receive email 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 <http://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 [SAM.gov](http://www.sam.gov) is not current at the time of the award.

Applicants will find instructions on registering with SAM.gov as part of the Grants.gov process at: [Applicant Registration | Grants.gov](#). Please note that after

February 10, 2023, new international entities registering in SAM.gov will not need an NCAGE code prior to registration if they are only pursuing financial assistance opportunities with NIST. For more information, please visit [FSD.gov](https://www.fsd.gov).

All applications submitted to the 2025-NIST-MSE-01 Research Grant Programs NOFO, must be received prior to the posting of the next NIST MSE Research Grant Programs NOFO on Grants.gov in order to be processed under this NOFO.

5. **Intergovernmental Review.** Applications under all programs in this NOFO are not subject to Executive Order 12372.
6. **Funding Restrictions.** Applications for product development and/or commercialization are not considered responsive to this NOFO.
7. **Other Submission Requirements for all programs listed in this NOFO.**
  - a. **Applications must be submitted electronically; paper applications will not be accepted.**
    - (1) Applications must be submitted at [www.grants.gov](https://www.grants.gov), under announcement 2025-NIST-MSE-01.
      - (a) 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 an application is received does not provide information about whether attachments have been received. For further information or questions regarding applying electronically for the 2025-NIST-MSE-01 announcement, contact the Grants.gov Help Desk at 800-518-4726.
  - b. **Amendments.** Any amendments to this NOFO will be announced through Grants.gov. Applicants may sign up for Grants.gov NOFO amendments or may request copies from the programmatic and technical questions contact for the appropriate program (see Section VII. of this NOFO).

## **V. Application Review Information**

### **1. Evaluation Criteria**

- a. **Associate Director for Innovation and Industry Services (ADIIS) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the ADIIS Grant Program and assigned weights are as follows:



**(1) Rationality.** The rationality, innovation, and creativity of the application and the fit of the proposed work to the objectives of the ADIIS Grant Program (see Section I.1. of this NOFO). **(0 – 30 points)**

**(2) Technical Merit of Contribution.** The potential effectiveness of the proposed activity and the likelihood and potential impact of the applicant's approach to strengthen and enhance the mission of the ADIIS Grant Program. **(0 – 30 points)**

**(3) Staff and Institution Capability to Perform the Work.** The quality of the facilities and experience of the staff to assess the likelihood of achieving the objective of the application. **(0 – 25 points)**

**(4) Match of Budget to Proposed Work.** Assessment of the budget against the proposed work to ascertain the reasonableness of the request. **(0 – 15 points)**

**b. Associate Director for Laboratory Programs (ADLP) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the ADLP Grant Program and assigned weights are as follows:

**(1) Rationality.** The rationality, innovation, and creativity of the application and the fit of the proposed work to the objectives of the ADLP Grant Program (see Section I.2. of this NOFO). **(0 – 35 points)**

**(2) Technical Merit of Contribution.** The potential effectiveness of the proposed activity and the likelihood and potential impact of the applicant's approach to strengthen and enhance the mission of the ADLP Grant Program. **(0 – 25 points)**

**(3) Staff and Institutional Capability to Perform the Work.** The quality of facilities and experience of the staff to assess the likelihood of achieving the objective of the proposed work. **(0 – 20 points)**

**(4) Match of Budget to Proposed Work.** Assessment of the budget compared to the proposed work to ascertain the reasonableness of the request. **(0 – 20 points)**

**c. CHIPS Research & Development Office (CRDO) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the CRDO Grant Program and assigned weights are as follows:

**(1) Rationality.** The rationality, innovation, and creativity of the application and the fit of the proposed work to the objectives of the CRDO Grant

Program (see Section I.3. of this NOFO). **(0 – 35 points)**

**(2) Technical Merit of Contribution.** The potential effectiveness of the proposed activity and the likelihood and potential impact of the applicant's approach to strengthen and enhance the mission of the CRDO Grant Program. **(0 – 25 points)**

**(3) Staff and Institutional Capability to Perform the Work.** The quality of facilities and experience of the staff to assess the likelihood of achieving the objective of the proposed work. **(0 – 20 points)**

**(4) Match of Budget to Proposed Work.** Assessment of the budget compared to the proposed work to ascertain the reasonableness of the request. **(0 – 20 points)**

**d. Communications Technology Laboratory (CTL) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the CTL Grant Program and assigned weights are as follows:

**(1) Rationality.** The coherence of the applicant's approach and the extent to which the application effectively addresses scientific and technical issues that are relevant to CTL programs. (see Section I.4. of this NOFO). **(0 – 25 points)**

**(2) Qualifications of Technical Personnel.** The professional accomplishments, skills, and training of the proposed personnel to perform the work proposed in the application. **(0 – 25 points)**

**(3) Resources Availability.** The extent to which the applicant has access to the necessary facilities and overall support to accomplish project objectives, and assessment of the budget against the proposed work to ascertain the reasonableness of the request. **(0 – 25 points)**

**(4) Technical Merit of Contribution.** The potential technical effectiveness of the proposed work and the value it would contribute to the field of measurement science and engineering, especially as it pertains to reference methods, reference materials and reference data in communications technology. **(0 – 25 points)**

**e. Engineering Laboratory (EL) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the EL Grant Program and assigned weights are as follows:

**(1) Technical Quality of the Research.** The clarity, rationality,

organization, innovation, and imagination of the application.  
**(0 – 35 points)**

**(2) Potential Impact of the Results.** The potential impact and the likelihood of achieving technical application of the results, and the degree of alignment with NIST's EL programs (see Section I.5. of this NOFO). **(0 – 35 points)**

**(3) Staff and Institution Capability to Perform the Work.** The quality of the facilities and experience of the staff to assess and overcome barriers to successfully achieve the objective of the application.  
**(0 – 15 points)**

**(4) Match of Budget to Proposed Work.** Assessment of the budget compared to the proposed work to ascertain the reasonableness of the request. **(0 – 15 points)**

**f. Fire Research (FR) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the FR Grant Program and assigned weights are as follows:

**(1) Technical Quality of the Research.** The clarity, rationality, organization, innovation, and imagination of the proposed work.  
**(0 – 35 points)**

**(2) Potential Impact of the Results.** The potential impact and the likelihood of the technical application of the results and the degree of alignment with NIST EL's Fire Research Program (see Section I.6. of this NOFO). **(0 – 35 points)**

**(3) Staff and Institution Capability to Perform the Work.** The quality of the facilities and experience of the staff to assess and overcome barriers to successfully achieve the objective of the application.  
**(0 – 15 points)**

**(4) Match of Budget to Proposed Work.** Assessment of the budget compared to the proposed work to ascertain the reasonableness of the request. **(0 – 15 points)**

**g. Information Technology Laboratory (ITL) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the ITL Grant Program and assigned weights are as follows, for a total maximum of 30 points:

- (1) Technical Quality and Intellectual Merit.** The extent to which the proposed activities are innovative, original, or potentially transformative; whether the research plan is well-reasoned, well-organized, and based on a sound rationale; and whether the plan incorporates a reasonable mechanism to assess success. **(0 – 10 points)**
  - (2) Potential Impact of the Results.** The probability of achieving technical application of the results and the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved. The extent to which the applicants approach aligns with ITL's programs and mission (See Section I.7. of this NOFO). **(0 – 10 points)**
  - (3) Capability to Perform the Work.** The extent to which the applicant organization, any proposed partner organizations, and key personnel, have the qualifications (e.g., training, experience, accomplishments) and resources (e.g., facilities, equipment) needed to support the proposed project and successfully achieve the stated objectives. **(0 – 5 points)**
  - (4) Match of Budget to Proposed Work.** Assessment of the budget compared to the proposed work to ascertain the reasonableness of the request. **(0 – 5 points)**
- h. International and Academic Affairs Office (IAAO) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the IAAO Grant Program are as follows:
- (1) Rationality.** The rationality, innovation, and creativity of the application and the fit of the proposed work to the objectives of the IAAO Grant Program (see Section I.8. of this NOFO).
  - (2) Technical Merit of Contribution.** The potential effectiveness of the proposed activity, its value to global metrology and quality infrastructure, and the likelihood and potential impact of the applicant's technical application of the proposed activity.
  - (3) Staff and Institutional Capability.** The quality of facilities and experience of the staff to assess the likelihood of achieving the objective of the proposed work.
  - (4) Match of Budget to Proposed Work.** Assessment of the budget compared to the proposed work to ascertain the reasonableness of the request.

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

- i. **Material Measurement Laboratory (MML) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the MML Grant Program are as follows:
- (1) **Rationality.** The coherence of the applicant's approach and the extent to which the application effectively addresses scientific and technical issues that are relevant to MML programs (see Section I.9. of this NOFO). **(0 – 25 points)**
  - (2) **Qualifications of Technical Personnel.** The professional accomplishments, skills, and training of the proposed personnel to perform the work proposed in the application. **(0 – 25 points)**
  - (3) **Resources.** The extent to which the applicant has access to the necessary facilities and overall support to accomplish project objectives and assessment of the budget against the proposed work to ascertain the reasonableness of the request. **(0 – 25 points)**
  - (4) **Technical Merit of Contribution.** The potential technical effectiveness of the proposed work and the value it would contribute to the field of measurement science and engineering, especially as it pertains to reference methods, reference materials and reference data in Material Measurements. **(0 – 25 points)**
- j. **NIST Center for Neutron Research (NCNR) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the NCNR Grant Program and assigned weights are as follows:
- (1) **Rationality.** The innovation, rationality, and coherence of the applicant's approach and the extent to which the application effectively addresses important scientific and technical issues using neutron methods and/or the development of innovative devices for neutron research (see Section I.10 of this NOFO). **(0 – 35 points)**
  - (2) **Technical Merit of Contribution.** The potential technical effectiveness of the proposed work and the value it would contribute to neutron research. **(0 – 25 points)**
  - (3) **Staff and Institutional Capability to Perform the Work.** The extent to which the applicant organization and key personnel have the skills, qualifications (e.g., training, experience, professional accomplishments) and resources (e.g., facilities, equipment) needed to support the proposed project, perform the work proposed in the application and

accomplish the stated project objectives. **(0 – 25 points)**

- (4) Match of Budget to Proposed Work.** Assessment of the budget against the proposed work to ascertain the reasonableness of the request. **(0 – 15 points)**

**k. Physical Measurement Laboratory (PML) Grant Program.**

- (1)** The evaluation criteria that will be used in evaluating applications considered by the **PML Grant Program, except for applications to the Office of Weights and Measures** (see Section V.1.k.(2) of this NOFO) are as follows:

- (a) Rationality.** The coherence of the applicant's approach and the extent to which the application effectively addresses scientific and technical issues that are relevant to PML programs (see Sections I.11.a. and I.11.c. through I.11.k. of this NOFO).
- (b) Qualifications of Technical Personnel.** The professional accomplishments, skills, and training of the proposed personnel to perform the work proposed in the application.
- (c) Resources.** The extent to which the applicant has access to the necessary facilities and overall support to accomplish project objectives and assessment of the budget against the proposed work to ascertain the reasonableness of the request.
- (d) Technical Merit of Contribution.** The potential technical effectiveness of the proposed work and the value it would contribute to the field of measurement science. Applications must be relevant to current PML research programs and have a relation to the objectives of ongoing PML programs and activities.

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

- (2)** The evaluation criteria that will be used in evaluating applications considered by the **Office of Weights and Measures** and assigned weights are as follows:
- (a) Technical Quality of the Research.** The rationality, innovation, and imagination of the application and the alignment with NIST's documentary standards and legal metrology programs (see Section I.11.b. of this NOFO). **(0 – 35 points)**

**(b) Potential Impact of the Results.** The potential impact and the technical application of the results to documentary standards and legal metrology communities. **(0 – 25 points)**

**(c) Staff and Institution Capability to Perform the Work.** The quality of the facilities and experience of the staff to assess the likelihood of achieving the objective of the application. **(0 – 20 points)**

**(d) Match of Budget to Proposed Work.** Assessment of the budget against the proposed work to ascertain the reasonableness of the request. **(0 – 20 points)**

**I. Special Programs Office (SPO) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the SPO Grant Program are as follows:

**(1) Rationality.** The logic and soundness of the applicant's approach and the extent to which the successful completion of the proposed work addresses scientific and technical issues relevant to SPO programs (see Section I.12. of this NOFO).

**(2) Technical Merit of Contribution.** The potential technical effectiveness of the proposed work and the value it would contribute to the fields of science relevant to the SPO.

**(3) Qualifications of Technical Personnel.** The professional accomplishments, skills, and training of the proposed personnel to perform the work proposed in the application.

**(4) Resources.** The extent to which the applicant has access to the necessary equipment and facilities and overall support to accomplish project objectives and assessment of the budget against the proposed work to ascertain the reasonableness of the request.

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

**m. Standards Coordination Office (SCO) Grant Program.** The evaluation criteria that will be used in evaluating applications considered by the SCO Grant Program and assigned weights are as follows:

**(1) Rationality.** The coherence of the applicant's approach and the fit of the proposed work to the objectives of the SCO Grant Program (see Section I.13. of this NOFO). **(0 – 30 points)**



**(2) Technical Merit of Contribution.** The potential effectiveness of the proposed work and the value it would contribute to the field of documentary standards and standardization. **(0 – 30 points)**

**(3) Key Technical Personnel and Institutional Capability to Perform the Work.** The extent to which the key technical personnel have the relevant qualifications, experience, and institutional support and resources necessary to accomplish the proposed project's goals, objectives, and work plan. **(0 – 20 points)**

**(4) Use of Funds and Cost-effectiveness.** Assessment of the budget against the proposed work to ascertain the reasonableness of the request. **(0 – 20 points)**

## **2. 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, Federal agents, and contractors, and/or by non-Federal personnel who have entered into confidentiality and conflict of interest agreements covering such information, when applicable.

### **a. Initial Screening of all NIST MSE Research Grant Program Applications.**

All applications received in response to this NOFO will be assigned to the program designated on the cover page of the Project Narrative and reviewed as received on a rolling basis to determine whether they are eligible, complete, and responsive to this NOFO and aligned with the respective program objectives and research grant areas as described in the Program Description (see Section I. of this NOFO).

Applications determined to be ineligible, incomplete, and/or non-responsive based on the initial screening will 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 that can easily be rectified or cured during the review process.

### **b. Full Review of Eligible, Complete, and Responsive Applications for all NIST MSE Research Grant Applications.**

All applications that are determined to be eligible, complete, and responsive will proceed for full reviews in accordance with the review and selection processes set forth below for each of the respective programs.

NIST reserves the right to negotiate the budget costs with the applicants that have been selected to receive awards, which may include requesting that the applicant remove certain costs. Additionally, NIST may request that the applicant modify objectives or work plans and provide supplemental information. For international applications, NIST will follow applicable U.S. laws and policies. 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 particular application. In some cases, NIST may ask applicants to consider combining projects. 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.

**(1) Associate Director for Innovation and Industry Services (ADIIS) Grant Program**

At least three (3) objective individuals knowledgeable about the particular scientific area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.a. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the Associate Director for Innovation and Industry Services, or designee, will make final application selections, taking into consideration the results of the reviewers' evaluations, relevance to the objectives described in the ADIIS Grant Program Description (see Section I.1. of this NOFO), and the availability of funds.

**(2) Associate Director for Laboratory Programs (ADLP) Grant Program**

At least three (3) objective individuals knowledgeable about the particular scientific area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.b. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the Associate Director for Laboratory Programs, or designee, will make final application selections, taking into consideration the results of the reviewers' evaluations, relevance to the objectives described in the ADLP Grant Program Description (see Section I.2. of this NOFO), and the availability of funds.

**(3) CHIPS Research & Development (CRD) Grant Program**

At least three (3) objective individuals knowledgeable about the particular scientific area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.c. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the CRDO Director, CRDO Deputy Director, or designee, the Executive Officer, or designee, will make final application selections, taking into consideration the results of the reviewers' evaluations, relevance to the objectives described in the CRD Grant Program Description (see Section I.3. of this NOFO), and the availability of funds.

#### **(4) Communications Technology Laboratory (CTL) Grant Program**

At least three (3) objective individuals knowledgeable about the particular scientific area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.d. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the CTL Executive Officer, appropriate CTL Division Chief, or designee, will make final application selections taking into consideration the results of the reviewers' evaluations, consultations with the appropriate CTL Division Chief or designee, relevance to the objectives described in the CTL Grant Program Description (see Section I.4. of this NOFO), and the availability of funds.

#### **(5) Engineering Laboratory (EL) Grant Program**

At least three (3) objective individuals knowledgeable about the particular scientific area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.e. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the EL Director, or designee, will make final application selections, taking into consideration the results of the reviewers' evaluations, relevance to the objectives described in the EL Grant Program Description (see Section I.5. of this NOFO), program balance, and the availability of funds.

#### **(6) Fire Research (FR) Grant Program**

***Prospective applicants are encouraged to contact the point of contact listed in the FR Grant Program Description (see Section I.6. of this NOFO) to determine the responsiveness of the application and compliance with program objectives prior to preparation of an application to the FR Grant Program.***

At least three (3) objective individuals knowledgeable about the particular scientific area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.f. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the EL Director, or designee, will make final application selections, taking into consideration the results of the reviewers' evaluations, relevance to the objectives described in the EL Fire Research Program Description (see Section I.6. of this NOFO), program balance, and the availability of funds.

#### **(7) Information Technology Laboratory (ITL) Grant Program**

At least three (3) objective individuals knowledgeable about the particular scientific area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.g. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the ITL Director, appropriate ITL Division Chief, or designee, the Executive Officer, or designee, will make final application selections, taking into consideration the results of the reviewers' evaluations, consultations with the ITL Director, or designee, relevance to the objectives described in the ITL Grant Program Description (see Section I.7. of this NOFO), and the availability of funds.

#### **(8) International and Academic Affairs Office (IAAO) Grant Program**

At least three (3) objective individuals knowledgeable about the particular area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.h. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the IAAO Director or designee, will make final application selections, taking into consideration the results of the reviewers' evaluations, relevance to the objectives described in the IAAO

Grant Program Description (see Section I.8. of this NOFO), and the availability of funds.

**(9) Material Measurement Laboratory (MML) Grant Program**

At least three (3) objective individuals knowledgeable about the particular scientific area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.i. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the MML Executive Officer, Business Operations Specialist, Senior Management Advisor, or designee, will make final application selections taking into consideration the results of the reviewers' evaluations, consultations with the appropriate MML Division Chief, relevance to the objectives described in the MML Grant Program Description (see Section I.9. of this NOFO), and the availability of funds.

**(10) NIST Center for Neutron Research (NCNR) Grant Program**

At least three (3) objective individuals knowledgeable about the particular scientific area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.j. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the NCNR Director or designee, will make final application selections, taking into consideration the results of the reviewers' evaluations, relevance to the objectives described in the NCNR Grant Program Description (see Section I.10. of this NOFO), and the availability of funds.

**(11) Physical Measurement Laboratory (PML) Grant Program**

At least three (3) objective individuals knowledgeable about the scientific area described in the application will review the merits of each application, based on the appropriate evaluation criteria (see Sections V.1.k.(1) and Section V.1.k.(2) of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the PML Director or designee, will make final application selections, considering the results of the reviewers'

evaluations, relevance to the objectives described in the PML Grant Program Description (see Section I.111. of this NOFO), and the availability of funds.

**(12) Special Programs Office (SPO) Grant Program**

***Prospective applicants are encouraged to contact the appropriate point of contact listed in the SPO Grant Program Description (see Section I.12. of this NOFO) to determine the responsiveness of the application and compliance with program objectives prior to preparation of an application to the SPO Grant Program.***

At least three (3) objective individuals knowledgeable about the scientific area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.l. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the SPO Director or designee, will make final application selections, considering the results of the reviewers' evaluations, relevance to the objectives described in the SPO Grant Program Description (see Section I.12. of this NOFO), and the availability of funds.

**(13) Standards Coordination Office (SCO) Grant Program**

At least three (3) objective individuals knowledgeable about the particular area described in the application will review the merits of each application, based on the evaluation criteria (see Section V.1.m. of this NOFO). The reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus.

The Selecting Official, who is the SCO Director or designee, will make final application selections, taking into consideration the results of the reviewers' evaluations, relevance to the objectives described in the SCO Grant Program Description (see Section I.13. of this NOFO), and the availability of funds.

- c. Federal Awarding Agency Review of Risk Posed by Applicants.** After applications are proposed for funding by the Selecting Official the NIST Financial Assistance Agreements Management Office (FAAMO) 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 FAAMO will review and consider the publicly available information about that applicant in the System for Award Management (*SAM.gov*). An applicant may, at its discretion, review, and comment on information about itself previously entered into *SAM.gov* by a Federal awarding agency. As part of its review of risk posed by applicants, NIST FAAMO will consider any comments made by the applicant in *SAM.gov* 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.

3. **Anticipated Announcement and Award Dates.** For all NIST MSE Research Grant Programs, awards will be made approximately 90 business days after the end of the review process (see Section V.2. of this NOFO). See information in Section IV.4. of this NOFO regarding awards made in a subsequent fiscal year.

#### 4. Additional Information

- a. **Safety.** NIST is committed to maintaining a work environment that safeguards the public and the environment, as well as Government personnel and property. Employees, contractors, and other associates of award recipients who conduct project work at a NIST-owned or operated site will be required to comply with all applicable NIST safety policies and procedures, and with all applicable terms of their guest research agreement.

**Personal Protective Equipment (PPE).** NIST may provide the following generic PPE: reusable hard hats, lab coats, non-prescription safety glasses, face shields, laser safety glasses, clean room PPE where required, and disposable gloves and earplugs. The employer shall provide all required person-specific, non-disposable, PPE specific to the work performed and the associated hazards. This type of PPE may include but is not limited to custom-fitted safety shoes and prescription safety glasses. **Medical Services Related to Safety/Hazards.** NIST shall perform health hazard evaluations associated with the recipient's employees contractors, and associates' work at a NIST-owned or operated site that involves the potential exposure to a health hazard, to make the determination of the need for medical surveillance.



Award recipients are responsible for providing the medical services and tests required for any applicable medical surveillance program.

**Allowable Costs.** Applicants may request funding for any required person-specific, non-disposable, personal protective equipment (PPE) that is specific to the work that will be performed, as well as for any required medical services and tests. Applicants may include in the budget the costs necessary and reasonable to meet any safety equipment and medical services requirements associated with work to be performed under an award.

**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 a debrief from the program office within 10 business days of the email notification. The program office will then work with the unsuccessful applicant to arrange a date and time for the debrief.

**c. Retention of Unsuccessful Applications.** Copies of each unsuccessful application 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 the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 C.F.R. Part 200, which apply to awards made pursuant to this NOFO. **Additional Information:** 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.

**b. Department of Commerce Financial Assistance General Terms and Conditions.** The Department of Commerce will apply the Financial Assistance General Terms and Conditions in effect on the date of award to any award made under this NOFO. The current version is dated October 1, 2024. 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 in effect on the date of award to any award made under this NOFO. The [current version](#) of 79 FR 78390 is dated December 30, 2014. Refer to Section VII. of this NOFO, Federal Awarding Agency Contacts, Grant Rules, and Regulations, if you need 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 issues this NOFO subject to the appropriations made available under the current continuing resolution funding the Department of Commerce: The Full-Year Continuing Appropriations and Extensions Act, 2025, Public Law 119-4 (March 15, 2025). NIST anticipates making awards for the program listed in this NOFO, provided that funding is continued beyond September 30, 2025, the expiration of the current continuing resolution.. 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 canceled 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.
- e. Collaborations with NIST Employees.** All applications must 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 Project Narrative must 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 favorable in the competitive process. Applications that do not describe the work to be completed by entities other than the applicant, or that do not describe their collaboration with NIST within the Project Narrative, will not be considered responsive to this NOFO.
- f. Use of Federal 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 General Terms and Conditions](#), dated October 1, 2024. Questions about these requirements may be directed to the Chief Counsel for NIST, (301) 975-2803, [nistcounsel@nist.gov](mailto:nistcounsel@nist.gov).

Any use of Federal Government-owned intellectual property by a recipient of an award under this announcement is at the sole discretion of the Federal Government and will need to be negotiated on a case-by-case basis by the recipient and the Federal agency having custody of the intellectual property if a project is deemed meritorious. The applicant should indicate within the Project Narrative whether it already has a license to use such intellectual property or whether it intends to seek a license from the applicable Federal agency.

If any inventions made in whole or in part by a NIST employee arise during 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 the Federal Government's rights in such inventions will be determined solely by the Federal Government, through NIST as custodian of such inventions, and include the possibility of the Federal Government putting the intellectual property into the public domain.

**g. Additional Consideration of Applications.** NIST programs are often cross-cutting and multi-disciplinary. If a NIST program official believes an application that is not selected for funding under a specific MSE research grant program may be of interest to another NIST MSE research grant program(s), the official may forward the application to any other NIST MSE research grant program(s) that the program official believes may have an interest in the project, for potential consideration under the other NIST MSE research grant program(s) procedures. If, upon initial screening, the other NIST MSE research grant program(s) finds the application may be of programmatic interest, the application will proceed through the review and selection process (see Section V.2 of this NOFO) for the specific MSE research grant program(s). If not, the application will be returned to the original program for final processing. **Any applicant that does not wish for its application to be considered by other NIST programs should indicate on its application that it would like consideration of the project to be limited to the program to which it originally submitted the application.** Applicants will be notified if their applications have been

forwarded to another NIST program(s) for potential consideration.

**h. Research Activities Involving Human Subjects or Vertebrate Animals.**

This section summarizes the requirements for applications that potentially involve research involving human subjects or vertebrate animals. Research potentially involving human subjects may include human subjects, human tissue, data, or recordings involving human subjects including software testing. Research potentially involving vertebrate animals may include live vertebrate animals or pre-existing cell lines or tissues from vertebrate animals. Additional information that describes the NIST review process for such applications and provides details regarding the documentation required is available here: <https://w3auth.nist.gov/oaam/grants-management-division/nist-nofo-information/nist-notice-funding-opportunity-requirements>. Both this summary and the additional information provided at the link will be incorporated into any award made under this NOFO.

**i. Summary**

**Research Involving human subjects.** Any application that includes research activities involving human subjects must satisfy the requirements of the Common Rule for the Protection of Human Subjects (“Common Rule”), codified for the Department of Commerce at 15 C.F.R. Part 27.<sup>9</sup> Research activities involving human subjects that fall within one or more of the classes of vulnerable subjects found in 45 C.F.R. Part 46, Subparts B, C, and D must satisfy the requirements of the applicable subpart(s). In addition, any such application that includes research activities on these subjects must comply with all applicable statutory requirements imposed upon the Department of Health and Human Services (DHHS) and other Federal agencies, all regulations, policies, and guidance adopted by DHHS, the Food and Drug Administration (FDA), and other Federal agencies on these topics, and all Executive Orders and Presidential statements of policy on applicable topics. The website of the Office of Human Research Protection (OHRP) in the DHHS contains the applicable regulations, policies, and guidance and (includes links to the FDA but may not include all applicable FDA regulations and policies).

If the application is accepted for or awarded funding, organizations that have an Institutional Review Board (IRB) are required to follow the procedures of their organization for approval of exempt and non-exempt research activities

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<sup>9</sup> NIST uses the Common Rule definitions for research and human subjects research contained in 15 C.F.R. 27.102.

that involve human subjects. The IRB must be currently registered with OHRP, which is linked to the engaged organization. Organizations that do not have an IRB must demonstrate the ability to expeditiously contract with a commercial IRB to conduct a review of the proposed activities. Also, all engaged organizations must possess a currently valid Federal wide Assurance (FWA) on file from OHRP. The NIST IRB is unable to serve as the IRB for financial assistance recipients.

**Research with Vertebrate Animals.** Any application that proposes research activities involving live vertebrate animals that are to be cared for, euthanized, or used by award recipients to accomplish research goals, teaching, or testing must meet the requirements of the Animal Welfare Act (AWA) (7 U.S.C. § 2131 et seq.), and the AWA final rules (9 C.F.R. Parts 1, 2, and 3), and if appropriate, the Good Laboratory Practice for Nonclinical Laboratory Studies (21 C.F.R. Part 58). In addition, such research activities should be in compliance with the “U.S. Government Principles for Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training” (Principles).

## **ii. Administrative Review**

The NIST Research Protections Office (RPO) reserves the right to conduct an administrative review of all applications that potentially include research involving human subjects under 15 C.F.R. § 27.112 (Review by Institution). Conducting an “administrative review” means that the NIST RPO will review and verify the performing institution’s determinations made under the Common Rule and all documentation that supports such determinations.

NIST reserves the right to conduct an administrative review of all applications that potentially include research activities that involve vertebrate animals. Conducting an “administrative review” means that the NIST RPO will review and verify the performing institution’s determinations made under the applicable legal and policy requirements and all documentation that support such determinations.

## **iii. Requirements for Application**

All applications involving human subjects or vertebrate animal research must clearly indicate, by separable task, all research activities believed to be human subjects or vertebrate animal research, the expected institution(s) where the research activities may be conducted, and the institution(s) expected to be engaged in the research activities. Some documents may be requested for a pre-review during the proposal review process; however, the Grants Officer may allow final versions of certain required documents to be produced at an appropriate designated time post-award. If an award is

issued, no research activities involving human subjects or vertebrate animals shall be initiated or costs incurred for those activities under the award until the NIST Grants Officer issues written approval. In addition, all re-approvals, amendments, modifications, changes, annual reports, and closures will be reviewed by NIST.

This section and the information provided here:

<https://w3auth.nist.gov/oaam/grants-management-division/nist-nofo-information/nist-notice-funding-opportunity-requirements> reflect the existing NIST applicable policies and requirements for Research Involving Human Subjects and vertebrate animals. Should the applicable policy be revised prior to the award, a clause reflecting the applicable policy current at the time of award may be incorporated into the award. If the applicable policy is revised after the award, a clause reflecting the updated applicable policy may be incorporated into the award.

For more information regarding research projects involving human subjects, contact Anne Andrews, Director, NIST Research Protections Office (e-mail: [anne.andrews@nist.gov](mailto:anne.andrews@nist.gov); phone: (301) 975-5445).

- i. **Collaboration Making Use of Federal Facilities.** All applications should include a description of any work proposed to be performed using Federal facilities.

If an applicant proposes the use of NIST facilities, the Project Narrative should include a statement of this intention and a description of the facilities. Any use of NIST facilities 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 availability of the facilities and approval of the proposed usage. Any unapproved facility use will be stricken from the application prior to the merit review. Examples of some facilities that may be available for collaborations are listed on the following NIST Web site: <https://www.nist.gov/labs-major-programs/user-facilities>.

### 3. Reporting

- a. **Reporting Requirements.** The following reporting requirements described in Section A.01 Reporting Requirements of the [Department of Commerce Financial Assistance General Terms and Conditions](#), dated October 1, 2024 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 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 (RPPRs).** Each award recipient will be required to submit an 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](#) and [Department of Commerce Financial Assistance General Terms and Conditions](#), dated October 1, 2024. Section A.01.

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

If a recipient's Data Management Plan (DMP) has changed since their last submission of an RPPR, the recipient must include their revised DMP in the next RPPR following the revision to the DMP. The revised DMP must include all the requirements described in Section IV.2.a.(11) of this NOFO.

**(3) Patent and Property Reports.** 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](#), 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 General Terms and Conditions, Section D.01.b., 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 \$1,000,000 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 \$1,000,000 or more in DOC funds 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 \$30,000 or more. In addition, recipients who 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.

## **VII. Federal Awarding Agency Contacts**

Questions should be directed to the following contact persons:

Subject Area	Point of Contact
Programmatic and Technical Questions	<b>ADIIS:</b> Bryana Head Phone: 301-975-4885 E-mail: <a href="mailto:bryana.head@nist.gov">bryana.head@nist.gov</a>
	<b>ADLP:</b> Stephanie Shaw Phone: 301-975-2667 E-mail: <a href="mailto:stephanie.shaw@nist.gov">stephanie.shaw@nist.gov</a>
	<b>CRDO:</b> Crystal Murphy Phone: 202-697-2117 E-mail: <a href="mailto:crystal.Murphy@chips.gov">crystal.Murphy@chips.gov</a>
	<b>CTL:</b> Kristine Tadros Phone: 303-501-3701 E-mail: <a href="mailto:kristine.tadros@nist.gov">kristine.tadros@nist.gov</a>
	<b>EL:</b> Jason Averill Phone: 301-975-2585 E-mail: <a href="mailto:Jason.averill@nist.gov">Jason.averill@nist.gov</a>

Subject Area	Point of Contact
	<p><b>FR:</b> Jiann Yang Phone: 301-975-6662 E-mail: <a href="mailto:jiann.yang@nist.gov">jiann.yang@nist.gov</a></p> <p><b>ITL:</b> Patricia Wilburg Phone: 301-975-6994 E-mail: <a href="mailto:patricia.wilburg@nist.gov">patricia.wilburg@nist.gov</a></p> <p><b>IAAO:</b> Magdalena Navarro Phone: 301-975-2130 E-mail: <a href="mailto:magdalena.navarro@nist.gov">magdalena.navarro@nist.gov</a></p> <p><b>MML:</b> Jody Sandel Phone: 303-497-6682 E-mail: <a href="mailto:jody.sandel@nist.gov">jody.sandel@nist.gov</a></p> <p><b>NCNR:</b> Dan Neumann Phone: 301-975-5252 E-mail: <a href="mailto:dan.neumann@nist.gov">dan.neumann@nist.gov</a></p> <p><b>PML:</b> Vanessa Velisek Phone: 202-768-4502 E-mail: <a href="mailto:vanessa.velisek@nist.gov">vanessa.velisek@nist.gov</a></p> <p><b>SPO:</b> Corrine Lloyd Phone: 301-975-8762 E-mail: <a href="mailto:corrine.lloyd@nist.gov">corrine.lloyd@nist.gov</a></p> <p><b>SCO:</b> Mary Jo DiBernardo Phone: 301-975-5503 E-mail: <a href="mailto:maryjo.dibernardo@nist.gov">maryjo.dibernardo@nist.gov</a></p>
Technical Assistance with Grants.gov Submissions	<p>Grants.gov Phone: 800-518-4726 E-mail: <a href="mailto:support@grants.gov">support@grants.gov</a></p>
Grant Rules and Regulations	<p>Nuria Martinez (EL, FR, ITL, NCNR, PML)</p> <p>Dean Iwasaki (CRDO, MML)</p> <p>Michael Teske (ADIIS, ADLP, CTL, IAAO, MEP, SPO, SCO)</p>

Subject Area	Point of Contact
	<a href="mailto:NOFO@nist.gov">NOFO@nist.gov</a> with “2025-NIST-MSE-01” in the subject line

## 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 Notice of Funding Opportunity may be subject to requests for release under the Act. In the event that 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.