PREP Research Associate

This position is part of the National Institute of Standards and Technology (NIST) Professional Research Experience Program (PREP). NIST recognizes that its research staff may want to collaborate with researchers at academic institutions on specific projects of mutual interest and, therefore, requires those institutions to be recipients of a PREP award. The PREP program involves staff from a wide range of backgrounds conducting scientific research across various fields. Individuals in this position will perform technical work supporting the collaboration's scientific research.

Research Title:

PREP0004208 – 672.03 - OTA Communications Measurements with Traceable Signal and Channel at mmWave Frequencies

The work will entail:

The RF Technology Division of the Communications Technology Laboratory at NIST is seeking a qualified candidate for a postdoctoral position working with traceable measurement systems for wide bandwidth modulated signals. The candidate will set up and automate hybrid anechoic measurements. The candidate will be working with synthetic aperture techniques and making them traceable to primary standards to characterize over-the-air communications channels. The candidate will also use a precision modulated signal source and signal processing to incorporate low-distortion communications signals into the setup to create a unique test environment for novel 5G and 6G systems incorporating beam-steering phased arrays. The candidate will incorporate measurement uncertainties into the analysis using the NIST Microwave Uncertainty Framework.

U.S. Citizen Preferred

Key responsibilities will include but are not limited to:

- Precision electromagnetic field measurements and uncertainty evaluation.
- Development of multiport OTA measurement approaches, including assessment of measurement uncertainty.
- Instrument automation
- Accurate modulated-signal analysis of signals.
- Analysis of data and measurements to provide complete traceability path to primary standards.
- Experimental design to create repeatable test conditions that best expose devices to a traceably known condition.
- Present and publish technical results.

Qualifications

- Ph.D. in Electrical Engineering, Physics, or related field
- Research experience involving one or more of the following areas: RF measurement, antenna design/characterization, signal processing, EMI/EMC Testing.
- RF Measurement experience
- Antenna design/characterization
- Signal processing
- Experience with microwave electronics simulation software (e.g. HFSS and ADS) is desirable
- Experience with LabView, MATLAB, Python, other measurement automation and analysis software
- Mechanical and electrical design and fabrication capability is desirable
- Metrology and uncertainty analysis experience

Please upload the following (preferably in a single PDF) with your application:

- This Job Description/Research proposal

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Choose of the available options on the following link: FLCDataCenter.com.
What title best suits this PREP project and its requirements?

- 17-2071.00 Electrical Engineers
  Research, design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use.
  View Wages for OES/SOC 17-2074: Electrical Engineers, R&D

Privacy Act Statement

Authority: 15 U.S.C. § 278g-1(e)(1) and (e)(3) and 15 U.S.C. § 272(b) and (c)
Purpose: The National Institute for Standards and Technology (NIST) hosts the Professional Research Experience Program (PREP) which is designed to provide valuable laboratory experience and financial assistance to undergraduates, post-bachelor's degree holders, graduate students, master's degree holders, postdocs, and faculty.
PREP is a 5-year cooperative agreement between NIST laboratories and participating PREP Universities to establish a collaborative research relationship between NIST and U.S. institutions of higher education in the following disciplines including (but may not be limited to) biochemistry, biological sciences, chemistry, computer science, engineering, electronics, materials science, mathematics, nanoscale science, neutron science, physical science, physics, and statistics. This collection of information is needed to facilitate administrative functions of the PREP Program.
Routine Uses: NIST will use the information collected to perform the requisite reviews of the applications to determine eligibility, and to meet programmatic requirements. Disclosure of this information is also subject to all the published routine uses as identified in the Privacy Act System of Records Notices: NIST-1: NIST Associates.
Disclosure: Furnishing this information is voluntary. When you submit the form, you are indicating your voluntary consent for NIST to use of the information you submit for the purpose stated.