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.

U.S. Citizen Preferred

RESEARCH TITLE: **Quantum Networking Research Physicist**

Overview: The Information Technology Laboratory of the National Institute of Standards and Technology is seeking qualified candidates for the position of research physicist. The position will be for performing advanced quantum optical experiments within the Quantum Information Groups (QIG) Quantum Communication and Networking Project. The researcher will be tasked with independently developing and implementing the phase/polarization stabilization and recovery processes compatible with optical fiber-based quantum networks in very challenging conditions (such as long distance, lossy and noisy aerial fibers). The researcher will also be tasked with implementing Hong-Ou-Mandel (HOM) experiments across quantum network nodes for entanglement distribution along with the required node synchronization over the network. US citizenship is preferred.

Duties

- Independently develop processes for phase and polarization recovery compatible with optical fiber-based quantum networks in very challenging conditions.
- Performing advanced quantum optics and quantum networking experiments.
- Produce high-quality publications based on research and results present at internal and external meetings and conferences.

Required Skills, Expertise and Qualifications

- US citizenship is preferred.
- A PhD degree in Physics with 3 or more years of relevant experimental experience.
- Expertise in Quantum Optics, Quantum Mechanics and Quantum Information Systems (QIS) including a fundamental understanding of the mechanics of polarized light transmission through optical fibers at the classical and single photon level.
- Ability to build complex and extensive quantum optical experiments.
- Ability to develop deployable tools needed for advanced quantum networking experiments.
- Strong oral and written communication skills and strong presentation skills.

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.