PREP Research Associate

This position is part of the National Institute of Standards (NIST) Professional Research Experience (PREP) program. NIST recognizes that its research staff may wish to collaborate with researchers at academic institutions on specific projects of mutual interest, thus requires that such institutions must be the recipient of a PREP award. The PREP program requires staff from a wide range of backgrounds to work on scientific research in many areas. Employees in this position will perform technical work that underpins the scientific research of the collaboration.

Research Title:

- PREP0004345 - 688.10 Trapped Ion Quantum Networking Postdoctoral Researcher

The work will entail:

- The work for this position will be within the Ion Storage group, within the Time and Frequency Division at NIST Boulder. The researcher will work in a team developing a high-rate, high-fidelity quantum repeater using trapped ions.

Key responsibilities will include but are not limited to:

- Assist with the design, planning, and construction of experimental apparatus for trapped ion quantum networking including laser systems, rf/microwave electronics, vacuum chambers, cryogenic systems, and control electronics
- Design and perform quantum networking experiments with trapped ions and analyze the data, including performing relevant theoretical calculations
- Disseminate experimental and theoretical results through publication in journals and presentation at conferences.
- Mentor graduate students, post-baccalaureate researchers, and undergraduate students by providing research guidance, technical training, and professional development support

Qualifications

- U.S. Citizen Preferred
- Bachelor's degree in physics or electrical engineering
- 5+ years of prior experience working in a trapped ion or neutral atom quantum science laboratory
- Prior experience building or operating laser systems, laboratory control electronics, ultra-high-vacuum systems, and/or cryogenic systems
- Strong mathematics/physics skills
- Strong oral and written communication skills
- Preferred: has completed graduate-level quantum mechanics course
- Preferred: has completed graduate-level electromagnetism course
- Preferred: has completed graduate-level quantum optics or atomic physics course

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.