

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:

- **Ultrastable Laser Design and Development**

The work will entail:

- This position involves implementing novel ultrastable laser systems using compact and portable optical reference cavities. This includes building and implementing the electro-optic and electronic frequency locking hardware, testing novel optical reference cavity materials, measuring the stable laser's performance in terms of frequency and phase noise, and measuring acceleration sensitivity. This position involves teamwork within a diverse scientific community, excellent oral communication, and the generation of written publications.

Key responsibilities will include but are not limited to:

- Simulation and design of compact optical reference cavities
- Ultrastable laser locking using both established and novel locking strategies
- Laser phase noise and frequency stability data acquisition and analysis; documentation of results
- Presenting results as appropriate at internal meetings, meetings with external stakeholders, and at technical conferences

Qualifications

- **U.S. Citizen Preferred**
- Ph.D. in physics, optics, chemistry, engineering or related field
- Strong oral and written communication skills
- 3+ years of experience with optical systems.
- Preferred: Familiarity with Fabry-Perot cavities and cavity stabilization techniques

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.