

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:

- Cryogenic Optical Cavity Graduate Research Assistant

The work will entail:

We are developing a cryogenic optical reference cavity for laser stabilization and atomic clock applications at NIST. The goal of this system is to reach unprecedented levels of frequency stability using a sapphire cavity at liquid-helium temperatures.

Key responsibilities will include but are not limited to:

- Design, construction and operation of the optical cavity system including laser optics, digital and analog electronics, opto-mechanics and cryogenics.
- Design and implementation of experiments to evaluate and optimize various aspects of cavity performance
- Identification and exploration of new scientific goals and opportunities using the cryogenic cavity
- Evaluation of experimental data
- Communication of experimental results in the form of peer-reviewed publications and conference presentations

Qualifications

- **U.S. Citizen Preferred**
- Bachelors degree in physics, electrical engineering or related field
- Strong mathematics/physics skills
- Strong oral and written communication skills
- Preferred: Prior experience with atomic physics or precision measurement experiments
- Preferred: Prior experience building or operating laser systems, laboratory control electronics, ultra-high-vacuum systems and/or cryogenics

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.