

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:

Analyst/Programmer for Mass Spectral Reference Data (U.S. Citizens preferred)

The work will entail:

The Materials Measurement Laboratory of the National Institute of Standards and Technology is seeking qualified candidates (U.S. Citizens preferred) to maintain and develop widely used software and analysis methods for reference databases of mass spectra and related data. This involves highly complex Microsoft Windows user interface software for both internal and external use in accessing this data as well as for identifying compounds in complex chemical mixtures. It also involves developing software specifically designed for mass spectral data quality analysis. Spectra include electron ionization with retention indices, tandem electrospray of small molecules and peptides. This work also involves the implementation of chemical structure-based analysis as well as the building of varied library analysis tools to assist NIST research programs.

U.S. Citizen Preferred

Key responsibilities will include but are not limited to:

- Maintain and extend a highly complex Microsoft Windows user interface program for enabling the use of NIST Mass Spectral Reference Libraries for compound identification
- Maintain and extend user interfaces and data analysis algorithms for interpreting mass spectra in terms of chemical structure
- Create consensus mass spectral libraries for specialized NIST applications
- Create interfaces between programs written by other NIST staff and external distributors of NIST data to the NIST library program

Qualifications

- Ph.D. Required
- Demonstrated expertise in developing highly interactive, complex Microsoft Visual C++ chemical structure based scientific database software
- Demonstrated expertise in chemical structure analysis by computer
- Demonstrated facility in applying mass spectral fragmentation rules for electron ionization, electrospray tandem and related ionization methods
- Experience in working closely with research scientists and scientific programmers

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.