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.

Divi 733.03 **Smoke Characterization for Advanced Fire Detection and Environmental Measurements**

U.S. Citizen Preferred

The work will entail conducting research to characterize the light scattering properties of fire smokes generated in both residential and wildland-urban interface contexts. The researcher will conduct light scattering experiments and simulations with different light source wavelengths and different scattering angles. The goals of collecting this type of data are to be able to inform advanced light scattering detector or sensor configurations that can differentiate surrogate and real smoke sources. We aim to find improved technologies to reduce nuisance alarms in residential smoke alarms and reduce sensor bias in low-cost particulate matter sensors, which are often relied upon to measure air quality during exposures to wildland fire smoke.

Key responsibilities will include but are not limited to:

- Conducting experiments to collect light scattering data from various aerosol sources,
- Determining methods to process and analyze results,
- Use modeling tools to simulate Mie scattering, heat transfer, and fluid flows,
- Presenting results at internal meetings and meetings with external stakeholders,
- Ensuring that results, protocols, software, and documentation have been archived and disseminated in archival journals

Qualifications

- A doctoral degree in engineering or science field
- Experience in one or both of the following areas:
  - laser or optical diagnostics in fluids
  - aerosol science
- Familiarity with the use of computational models and common scripting languages (Python, Matlab)
- Ability to develop research plans and document research results in journals
- Strong oral and written communication skills.

Links to Apply

https://softmatter.georgetown.edu/job-opportunities/ (PREP0004474)

https://engineering.gwu.edu/post-doctoral-fellow-smoke-characterization-advanced-fire-detection-and-environmental-measurements

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.