

**PREP Research Associate
CHIPS Funded Project.**

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:

Materials science and rheology of complex polymeric and composite materials

The work will entail:

The Materials Measurement Laboratory of the National Institute of Standards and Technology is seeking a Materials Scientist to lead metrology development in rheology, thermal analysis, and structure–property relationships for complex polymeric and composite materials. Candidate will conduct high-level, independent research, translating cutting-edge measurements into industry-relevant metrics, reference methods/materials, and standards.

U.S. Citizen Preferred

Key responsibilities will include but are not limited to:

- Design and execute rheological characterization of complex fluids and soft solids
- Lead thermal and thermomechanical characterization
- Characterize and model reactive/curing systems
- Build structure–property insights through multimodal characterization
- Author publications and present research to stakeholders

Qualifications

- Ph.D. in polymer science, materials science, chemical engineering, or a related discipline.
- Expertise in rheology, including advanced techniques such as orthogonal superposition rheology and large amplitude oscillatory shear rheology.
- Experience with thermal analysis (DSC and at least one of DMA/TGA/TMA/CTE/thermal conductivity methods), including calibration/validation.
- Solid background in cure kinetics, chemorheology, and polymer polymer physics.
- Experience with additive manufacturing (extrusion-based and vat photopolymerization)
- Strong quantitative/data skills (e.g., Matlab/Python/Origin/JMP) for processing large datasets, fitting models, and producing publication-quality figures.
- Track record of technical writing (peer-reviewed papers, technical reports, SOPs) and communicating results to mixed audiences.
- Demonstrated ability to lead projects, mentor students/postdocs, and coordinate cross-functional collaborations.
- Ability to work on-site in a laboratory setting in Gaithersburg, MD and meet all safety/training requirements.

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 the 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. By applying to a CHIPS-funded PREP opportunity, you also acknowledge that participation in the project requires signing a Non-Disclosure Agreement (NDA) prior to beginning any work.