

NIST/MML/MSED Research Associate Opportunity

TITLE: Theory-Integrated Autonomous Experimentation for Sustainable Biotherapeutic Formulation Design

Overview

The Materials Measurement Laboratory of the National Institute of Standards and Technology is seeking qualified persons (U.S. Citizens preferred) to advance autonomous, data-driven biotherapeutic formulation design in the Autonomous Formulation Laboratory (AFL). The role will develop workflows that jointly optimize formulation composition and temperature, integrating machine learning with theory/simulation (e.g., RISM/PRISM, molecular simulation) to reduce experimental burden. Demonstrations will focus on peptide-therapeutic formulation systems.

Duties

- Implement composition–temperature optimization strategies for AFL agents.
- Integrate physics/theory/simulation outputs as priors/constraints to guide experimentation.
- Develop and maintain Python/ML pipelines for closed-loop experimentation and analysis.
- Execute experimental autonomous formulation campaigns and disseminate results.

Required Skills, Expertise and Qualifications

- Ph.D. in Materials Science/Engineering or closely related disciplines.
- Strong Python and machine learning experience with application to small angle radiation scattering experiments (active learning/Bayesian optimization and/or probabilistic modeling preferred).
- Hands-on experience with small angle radiation scattering experiment data collection.
- Experience with experimental data, reproducibility, and strong written/oral communication.

Employment Terms: This opportunity is to be an associate researcher in the NIST Materials Science and Engineering Division for a term of 1 year, with options to renew. Associate researchers are NOT Federal Employees, but they work along with NIST researchers and with NIST's often world class instrumentation. Relocation expenses will not be provided. U.S. Citizens hired into associate positions may have the opportunity to seek longer term Federal Employment.

Salary: Between \$80,000 and \$100,000

How to express interest: Interested persons (U.S. Citizens preferred) who meet all of the required qualifications are invited to express their interest by sending an email that briefly describes their qualifications along with a CV to 642assoc@nist.gov. U.S. Citizens should note "US Citizen" and the opportunity title in the email subject line. All others should note "Non-US Citizen" and the opportunity title in the email subject line.