

NIST/MML/MSED Research Associate Opportunity

TITLE: Quantifying Thermodynamic Signatures of Critical Mineral Capture in Membranes and Sorbents using Microfluidic Titration Calorimetry

Overview

The Materials Measurement Laboratory of the National Institute of Standards and Technology is seeking qualified persons (U.S. Citizens preferred) to design and deploy a microfluidic isothermal titration calorimetry to measure the thermodynamic signatures of metal ions in acidic solutions interacting with ion selective polymer membranes and sorbents for their use in critical minerals recovery from post-consumer electronic waste streams.

Duties

- Design and construct a microfluidic isothermal titration calorimeter to characterize polymer membranes and sorbents under in-operando conditions.
- Evaluate ion selective membranes and sorbents for metal ion capture and release.
- Generate thermodynamic data sets for use in computational separations models.

Required Skills, Expertise and Qualifications

- Ph.D. in Mechanical, Materials Science, or Chemical Engineering (or related fields).
- Experience with polyelectrolytes, zwitterionic polymers or metal-chelating polymers.
- Experience in building microfluidic devices with integrated analytical measurements.
- Proven skills in experimental design and data analysis.
- Excellent written and oral communication skills. Demonstrated excellence in maintaining organized laboratory notebooks and data for archival and review purposes.

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 \$90,000

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.