Vibrational micro-spectroscopist for detecting and identifying irregularly shaped particles (U.S. Citizens Preferred)

Overview

The Materials Measurement Laboratory of the National Institute of Standards and Technology (NIST) is seeking qualified persons (U.S. Citizens preferred) to develop analytical tools needed to monitor and characterize micro and nanoplastic (MNP) particles. The applicant will use commercial optical photothermal infrared (OPTIR) microscopy and other vibrational spectroscopy and imaging methods to improve identification of irregularly shaped particles less than 10 μm.

Duties

- Develop methods using OPTIR microscopy to characterize nonspherical polymeric particles (<10 μm), including hyperspectral, imaging, and polarization-dependent approaches
- Design and evaluate experimental systems to examine signal origin, measurement artifacts, and depth-dependent compositional relationships in OPTIR with pristine and chemically modified control samples
- Develop performance metric benchmarks for OPTIR measurements that can be used for evaluating data and method transferability to widely used IR-based and Raman techniques
- Contribute to NIST efforts for evaluating and characterizing crystallinity, molecular structure, and composition of candidate reference materials, which include irregularly shaped, polymeric particles and asymmetric materials arrays

Required Skills, Expertise and Qualifications

- Ph.D degree in physical sciences/materials engineering/chemical engineering
- Expertise in high-resolution chemical mapping of materials and tissues with OPTIR (preferred), Raman, or IR microspectroscopy
- Expertise in multivariate statistical methods used for evaluating vibrational spectroscopy data (OPTIR Preferred), including chemometrics, adapted ML tools, or other applied methods
- Demonstrate successful participation as a member to multidisciplinary research teams

Employment Terms: This opportunity is to be an associate researcher in the NIST Materials Measurement Science Division for a term of 1 year, with options to renew. Associate researchers are NOT Federal Employees, but they work alongside NIST researchers and with NIST's 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: $85,447-$88,500

How to express interest: Persons (U.S. Citizens Preferred) who meet all of the required qualifications and who would be interested in taking this position are invited to express their interest by sending an email that briefly describes their qualifications along with a CV to 643assoc@nist.gov. US 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.