TITLE: Biosensing using DNA-carbon nanotubes hybrids (U.S. Citizens preferred)

Overview

The Materials Measurement Laboratory of the National Institute of Standards and Technology is seeking qualified persons (U.S. Citizens preferred) to advance processing and separations of nanomaterials, including single wall carbon nanotubes. The applicant will work with a dynamic team in the Particles Nanotube and Colloids project to advance fundamental measurement science in sorting, characterization, and spectroscopic data analysis using machine learning that serves broad-based technologies including advanced materials and biosensors. Generated materials are also expected to support a wide variety of collaborative efforts, including interlaboratory comparisons and metrology development.

Duties

- Optimize DNA-based separation of single-chirality single-wall carbon nanotube (SWCNT) species using empirical and machine-learning guided approaches
- Advance scale-up capabilities for producing liter-scale volumes and support the standardization of nanotube sorting protocols.
- Apply processing and characterization methods developed by NIST for assessment of SWCNT species chirality, length, and morphological purity. Develop biosensing protocols using structure defined DNA-SWCNT hybrids.

Required Skills, Expertise and Qualifications

- A PhD in Science or Engineering disciplines including Chemical Engineering, Materials Science, soft-matter physics, chemistry, colloidal science or related disciplines.
- Experience in synthesis, liquid-phase processing and separations, optical-based biosensing, and characterization of nanomaterials by optical spectroscopic methods including near infrared, fluorescence, UV-vis, and/or Raman and fluorescence spectroscopy.
- Excellent written and oral communication skills.

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 $65,000 and $75,000

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 642assoc@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.