

Job Opportunity: Staff Research Position
Sensor Science Division
National Institute of Standards and Technology (NIST)

The Sensor Science Division of NIST is currently seeking a full-time staff researcher for its Low Background Infrared (LBIR) Facility. The LBIR Facility carries out research and development that enables high accuracy measurements of infrared radiation for defense, astronomical remote sensing, and materials applications. Our team develops and deploys custom cryogenic radiometers for broadband and spectral infrared measurements, carries out calibrations of optical systems from DOD and NASA, and develops novel detectors for sensing in the mid- and far-infrared. In particular, we have active research projects focused on superconducting nanowire single photon detectors and carbon nanotube thermal detectors.

Details of the Position

The staff researcher will help carry out special calibration projects for federal agencies and universities, using the unique infrared measurement capabilities of the LBIR Facility at NIST. In addition, they will pursue research on novel infrared detectors, including superconducting nanowire single photon detectors (SNSPD) optimized for the mid-infrared.

The LBIR Facility operates multiple cryogenic calibration chambers where entire optical experiments can be placed within a volume (up to several cubic meters) that mimics the environment of space. In this low infrared radiation background, the researcher will use specialized instruments such as a cryogenic Fourier transform spectrometer (FTS), helium bolometers, Si:As blocked-impurity-band (BIB) detectors, and vacuum infrared blackbody sources to make high-accuracy infrared measurements.

The work location for this position is at the NIST campus in Gaithersburg, Maryland. We have multiple collaborations with groups from the NIST campus in Boulder, Colorado who fabricate single photon detectors and carbon nanotube bolometers, and travel to NIST Boulder as part of these collaborations will be encouraged. Occasional (roughly annual) travel to support radiometer deployments to customer facilities will be required.

Qualifications

- PhD (or Master's with 3 years relevant work experience) in Physics or a related field.
- Demonstrated experience working with cryogenic systems.
- Demonstrated experience working with optical systems, particularly infrared spectrometers and radiometers.
- Ability to control, operate and automate scientific test equipment and instrumentation.
- Familiarity with design tools like SolidWorks, Zemax OpticStudio, or similar.
- Familiarity with the programming languages LabVIEW, Python, and Matlab.
- Strong oral and written communication skills.
- U.S. Citizenship is required for this position.

Inquiries for the Position

Qualified candidates should submit a letter of interest describing their research background and a CV with complete list of publications to joe.rice@nist.gov and solomon.woods@nist.gov.