

**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 permanent staff member to develop new optical radiation measurement methods, design and build instruments to calibrate the responsivity of optical detectors and analyze the measurement results, with emphasis on rigorous uncertainty evaluation. The objective is to advance the state of the art in the optical power responsivity calibration of optical detectors using innovative cryogenic electrical substitution radiometers.

**Details of the Position**

The staff member will support the dissemination of the optical watt by operating and improving the NIST Primary Optical Watt Radiometer (POWR), a cryogenic electrical substitution radiometer that serves as the Nation's optical power responsivity reference.<sup>1,2</sup> POWR uses a supercontinuum source, monochromators, lasers, and associated instrumentation to calibrate customer radiometers (usually photodiodes) on a regular (typically annual) basis. There are also multiple opportunities to perform research and development to improve POWR. Examples of desired improvements include transitioning the cooling system from liquid helium to a mechanical cryocooler, increasing the automated spectral range beyond that of the supercontinuum source, and expanding the measurement mode from radiant power (underfilled aperture) to irradiance (overfilled aperture). Duties include writing optical power responsivity calibration reports for customer detectors and writing research papers for publication.

The work location for this position is at the NIST campus in Gaithersburg, Maryland. The staff member will also be encouraged to travel occasionally to present results at scientific conferences.

References:

1. J. M. Houston and J. P. Rice, "NIST reference cryogenic radiometer designed for versatile performance," *Metrologia* **43**, S31-S35 (2006).
2. <https://www.nist.gov/programs-projects/primary-optical-watt-radiometer-powr>

**Qualifications**

- M.S. or higher degree in Physics or a related field, or equivalent coursework/experience.
- Experience and/or strong interest in working with optical systems, lasers, and cryogenics.
- Passion for measurement science, especially precise measurements and high accuracy.
- Ability to operate and automate scientific test equipment and instrumentation.
- Familiarity with the programming languages LabVIEW and Python or willingness to learn.
- 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](mailto:joe.rice@nist.gov).

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