

Postdoctoral Position with NIST Communications Technology Laboratory

The [NIST RF Fields Group](#) has multiple opportunities for postdoctoral researchers to develop experimental and theoretical methods for Rydberg atom sensors for a variety of applications. The Group is exploring a new quantum-based paradigm for radio frequency sensors that uses atoms excited by lasers to measure microwave field strength with direct SI-traceability. The Rydberg atom-based probe acts as a compact receiver antenna that measures amplitude, phase and polarization of modulated electric fields over a huge frequency range from DC to THz. This is a fundamentally new approach to radio frequency metrology, one that promises to improve the sensitivity, precision, and ease of tests and calibrations of high-frequency field probes used for measuring radiated fields in next-generation 5G wireless systems, biomedical and nanoelectronic systems, and environmental and other sensors.

Postdoctoral scholars will have opportunities to design, build, and troubleshoot laser systems and electronics used in atomic physics experiments as well as working with RF electronic equipment and data analysis. Theoretical work includes developing atomic models for Rydberg atoms and other related physical simulations. A PhD in physics, engineering, or closely related field is required. Experience in one or more of the following areas is desired: atomic or molecular spectroscopy, Rydberg atoms, atomic simulations, and/or optical and electronic noise analysis.

The NIST RF Fields Group is located within the NIST Communications Technology Laboratory (CTL). Recruiting, developing, and retaining a diverse and inclusive workforce is essential to NIST mission of enhancing innovation. Through a diversity of people, disciplines and ideas, we find the best solutions. The NIST Postdoctoral and Early-career Association of Researchers (PEAR) is a vibrant community advocating for professional development opportunities for postdocs, students, and other early-career researchers.

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