

Postdoc Position Available at CU DENVER NIST PREP Program

NIST Organization (DIV/Group): [Quantum Nanophotonics Group](#)

This position is part of the National Institute of Standards (NIST) Professional Research Experience (PREP) program. NIST recognizes that its research staff may wish to collaborate with researchers at academic institutions on specific projects of mutual interest, thus requires that such institutions must be the recipient of a PREP award. The PREP program requires staff from a wide range of backgrounds to work on scientific research in many areas. Employees in this position will perform technical work that underpins the scientific research of the collaboration.

Research Title:

[Experimental quantum optics for quantum networks researcher](#)

The work will entail:

This work aims to develop hardware for quantum networks to implement advanced protocols such as quantum position verification. To this end, we are building a quantum network involving sources of high-quality photonic entanglement, fast quantum measurement stations, and stabilization technology that can be applied to quantum network links. Careful modeling of network components is required, as well as building quantum sources and other related hardware required for distributing and characterizing the performance of entanglement distribution. The position requires working with both theory and experimental teams to ensure the hardware is capable of carrying out quantum position verification-related experiments. The project scope is limited to fundamental research, and results will be available in the public domain through journal articles and conference presentations.

Key responsibilities will include but are not limited to:

- 1) Develop and test high-quality single and entangled photon sources.
- 2) Characterize and measure entangled states distributed through a metropolitan fiber network
- 3) Carry out quantum position verification experimental protocols
- 4) Present results at internal meetings, and occasional meetings with external stakeholders.
- 5) Ensuring that results, protocols, software, and documentation have been archived or otherwise transmitted to the larger organization.
- 6) Have familiarity with fiber coupling, intensity and phase modulators, nonlinear optics (sum frequency generation or four-wave mixing), and aligning optical cavities.

Qualifications

- 1) A PhD in Electrical Engineering, Physics, or a related field.
- 2) Two or more years of relevant experience in experimental nonlinear optics or quantum optics.
- 3) Experience with building entangled photons using spontaneous parametric downconversion.

- 4) Knowledge of bulk optics components as well as integrated photonic devices.
- 5) Familiarity with Python, Matlab, or similar programming language.
- 6) Strong oral and written communication skills, including a strong record of peer-reviewed publications.

NIST Sponsor Name: Krister Shalm lynden.shalm@nist.gov

Level of Appointment: Post-doctoral Fellow

Salary Determination: \$80,000 - \$105,000

Salary will be commensurate with experience

Start Date: 2026-12-27

End Date: 2028-02-29

For possible consideration and to apply to this position, qualified candidates should send a current CV, including contact information for three references and a publication list, to Hamid Fardi (hamid.fardi@ucdenver.edu). Please submit a single pdf file.

CU Denver PREP posting:

The National Institute for Standards and Technology (NIST) hosts **Professional Research Experience Program (PREP)** which is designed to provide valuable laboratory experience and financial assistance to undergraduates, post-bachelor's degree holders, graduate students, master's degree holders, postdocs, and faculty. PREP is a 5-year cooperative agreement between NIST laboratories and participating PREP Universities to establish a collaborative research relationship between NIST and U.S. institutions of higher education in the following disciplines including (but may not be limited to) biochemistry, biological sciences, chemistry, computer science, engineering, electronics, materials science, mathematics, nanoscale science, neutron science, physical science, physics, and statistics.

<https://engineering.ucdenver.edu/research/prep-research-program>