

Postdoc Position Available at CU DENVER NIST PREP Program

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

The National Institute of Standards and Technology (NIST), Boulder, Colorado, Physical Measurements Laboratory (PML) has a postdoctoral research position available immediately. The position includes activities in quantum optics, semiconductor nanostructures, precision spectroscopy, and optical system design.

Postdoc Position Description:

Our group has recently demonstrated hybrid systems combining semiconductor optical quantum dots (QDs) and acoustic resonators as a promising platform for quantum information processing and transmission. All aspects of this work are performed 'in house' using NIST's state-of-the-art nanofabrication, molecular beam epitaxy, and low-temperature optical spectroscopy tools. The successful candidate will help lead this project, building on recent accomplishments, towards the goal of generating remote entanglement between superconducting qubits.

General Duties and Responsibilities:

- Design and construct GHz frequency acoustical resonators in Gallium Arsenide.
- Precision spectroscopy of Indium Arsenide quantum dots (QDs) embedded in acoustical resonators.
- Analyze and interpret the microwave and optical characteristics of the hybrid microwave/optical system.
- Work as a member of a collaborative, interdisciplinary team.
- Provide technical input to research problems which have been recognized as critical obstacles to progress in areas of exceptional interest.
- Prepare and review journal publications, contributing important advancements to quantum optics, quantum networking, optical communications, and optical measurement techniques.
- Attend research conferences and present technical results.

Knowledge, Skills, and Abilities:

- Experience with design and spectroscopy of semiconductor nanostructures.
- Experience with optical measurement techniques such as: coherent detection, resonance fluorescence, confocal microscopy, laser diagnostics, noise characterization, and statistical optics.
- Experience in cryogenic measurements, with dilution refrigerator experience a plus.
- Ability to code with, or learn to code with: MATLAB, LabView, and Python is required.
- Experience with modern nanofabrication techniques such as electron beam lithography and plasma etching is desirable
- Experience with cryogenic microwave circuit design and testing is a plus.

NIST Sponsor Name: [Kevin L. Silverman \(kevin.silverman@nist.gov\)](mailto:kevin.silverman@nist.gov)

Level of Appointment: [Postdoc](#)

- The candidate shall have completed a Ph.D. degree in Physics, engineering, computer engineering or a related area within the past 5 years or will receive a Ph.D. degree by November 1st 2024.
- The candidate must be eligible to work in the U.S.A. by time of application.

Salary Determination: \$82,000 - \$85,000

Length of Term:

Start dates : 2024-11-01

End Date : 2026-10-31

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 professor Hamid Fardi (hamid.fardi@ucdenver.edu).

CU Denver PREP posting:

[https://engineering.ucdenver.edu/research/prep-research program](https://engineering.ucdenver.edu/research/prep-research-program)