

Postdoc Position Available at CU DENVER NIST PREP Program

NIST Organization (DIV/Group): [Quantitative Nanostructure Characterization 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: [Metrology of AlN Based Semiconductors](#)

This PREP position focuses on developing traceable standards for 5G, 6G, and beyond. The position requires finite element simulations, programming, network analysis, dimensional metrology, and other skills. The position will use on-wafer and resonator methods to develop standards for mmWave industry to validate the authenticity of integrated circuits and materials.

The work will entail:

Key responsibilities will include but are not limited to:

- Research and develop scanning transmission electron microscopy (STEM) for metrology of AlN based semiconductor/contact interfaces and subsequent determination of adjacent electric field profiles.
- Research and develop transmission electron microscopy (TEM) for characterization of atom probe tomography (APT) specimens to assess shape, dimensions and chemical distributions.
- Focused ion beam specimen preparation for TEM and APT measurements.
- Research and develop atom probe tomography (APT) for metrology of AlN based semiconductors; measure specimen compositions, including gradients and clustering of elements.
- Communicate and collaborate with team members. Present and publish results as appropriate.
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Qualifications

- A PhD in Materials Science and Engineering, or a related field.
- Three or more years of experience with advanced scanning transmission electron microscopy (STEM) techniques.
- Familiarity with spatially resolved mapping of materials structure/composition.
- Knowledge of techniques for electron beam damage mitigation.
- Development and application of advanced STEM-EELS.

- Experience operating a scanning electron microscope.
- Familiarity with materials diffraction patterns.
- Strong oral and written communication skills.

NIST Sponsor Name: Alexana Roshko alexana.roshko@nist.gov

Level of Appointment: Postdoc

Salary Determination: \$82440 - \$83500

Salary will be commensurate with experience

Start Date: 2025-02-24

End Date: 2026-08-07

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:

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