

Center for Nanophase Materials Sciences

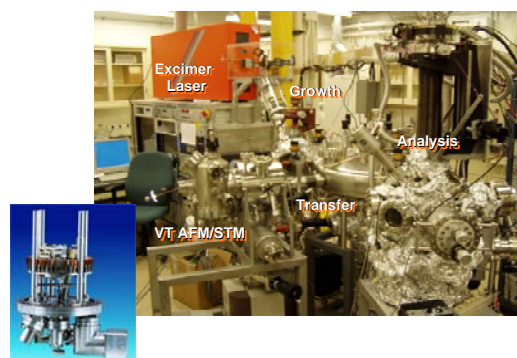
Postdoctoral Research Associate in Growth and In Situ Structural, Electronic, and SPM Characterization of Oxide Surfaces

Center for Nanophase Materials Sciences
Physical Sciences Directorate
Oak Ridge National Laboratory

ORNL08-112-CNMS

Project Description:

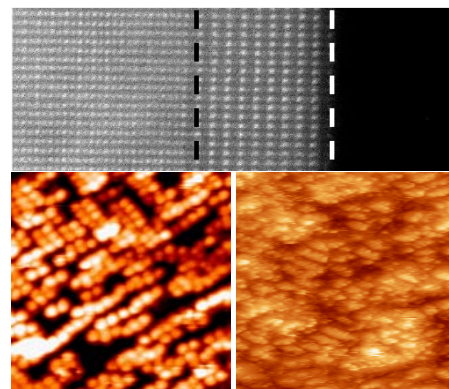
The Center for Nanophase Materials Sciences at Oak Ridge National Laboratory invites applications for an experimental postdoctoral position in the fields of growth and characterization of ferroelectric and strongly correlated oxide thin films and heterostructures. The candidate will perform the research using a unique ultrahigh vacuum system combining pulsed laser deposition (laser MBE) with in-situ characterization tools including electron spectroscopies, LEED, and UHV scanning probe microscopy. The system is equipped with variable temperature Omicron AFM/STM with Nanonis controller configured as the Piezoresponse Force Microscope/Scanning Tunneling Microscope for ferroelectric imaging and transport studies.



Nano Transport system combining *in-situ* Pulsed Laser Deposition, surface analysis, and variable temperature AFM/STM.

Qualifications:

We are seeking candidates with expertise in PLD growth and scanning probe characterization of oxide materials. Experience in UHV operation and electron spectroscopy is an advantage. The focus of this research will be on the fundamental properties of oxides confined to ultrathin films and heteroepitaxial interfaces, including electronic and structural phase transitions, electrical transport and tunneling, and ferroelectric dynamics of domain formation and retention. The candidate will work in close interaction with ORNL groups in experimental nanoscience, and scanning probe development. This position requires a Ph.D. in the physical sciences, with an emphasis on atomic force microscopy (including PLD growth, UHV operations, and electron spectroscopy). The successful applicant must have experience in the experimental application, development, and quantitative interpretation of modern scanning probe techniques. Excellent oral and written communication skills are required, and presentations and publication of scientific results in peer-reviewed journals are expected. The applicant must have the ability to work in a team and interact effectively with a broad range of colleagues. Demonstrated ability to communicate in English to an international scientific audience is essential. All degree requirements must be completed before starting the appointment.



Scanning Transmission Electron Microscopy (STEM) image of BaTiO₃/SrRuO₃ film. Atomically resolved Scanning Tunneling Microscopy images of (b) SrRuO₃ electrode and (c) BaTiO₃ thin film.



How to Apply:

Qualified applicants may apply online at https://www2.ornl.gov/ORNL_POST/. All applicants will need to register before they can begin the online application. For complete instructions, on how to apply, please see the instructions at <http://www.ornl.gov/orise/edu/ornl/orni-pdpm/application.htm>. When applying for this position, please reference the position title and number. Technical questions regarding the position can be directed to Dr. Art Baddorf, baddorfap@ornl.gov. Applications will be accepted until October 1, 2008, or until the position is filled.

This appointment is offered through the ORNL Postgraduate Research Participation Program and is administered by the Oak Ridge Institute for Science and Education (ORISE). The program is open to all qualified U.S. and non-U.S. citizens without regard to race, color, age, religion, sex, national origin, physical or mental disability, or status as a Vietnam-era veteran or disabled veteran.