

FIRST Fellows Program

Postdoctoral Research Associate Position: Electrochemical Scanning Probe Microscopy Energy Frontier Research Center Oak Ridge National Laboratory Oak Ridge, Tennessee

FIRST-06-ORNL

Project Description:

A new Energy Frontier Research Center for the study of Fluid Interface Reactions, Structure and Transport (FIRST) at Oak Ridge National Laboratory (<http://www.ornl.gov/sci/first/index.shtml>) is seeking a post-doctoral associate to work on a research project in electrochemical and electromechanical Scanning Probe Microscopes of dynamic phenomena occurring at metal, metal oxide, and carbon surfaces and interfaces.

Brief Description of Major Duties and Responsibilities

The research will involve electrochemical and electromechanical studies of kinetics, thermodynamics, and mechanisms of local electrochemical processes at conducting and semiconducting surfaces in ambient environment, aqueous and non-aqueous solution. The research will take advantage of unique set of SPM tools developed at ORNL for the characterization of electrical, transport, and dynamic properties of materials, including band excitation scanning probe microscopy and multimodal switching spectroscopy measurements. The research will be conducted in collaboration with other members of the FIRST Center in which experimental studies will be integrated with theory, modeling, and simulation. This project will adapt and develop enabling instrumentation and measure thermodynamics and kinetics of electrochemical reactions of interest to electrochemical energy conversion locally, establishing the relationship between microstructure and reaction mechanisms. The expected product of this research is a spatially resolved picture of electrochemical process in real space, which then both serve as an input for macroscopic studies, and allows to link defect and microstructure to functionality on mesoscopic and atomic levels..

Qualifications:

Candidates must have a Ph.D. in (electro) chemistry, materials science, or condensed matter physics with heavy emphasize on the SPM imaging in liquid environments and electrochemical probes. This position requires a strong experimentalist with demonstrated experience in electrochemical SPMs or electrochemistry in general. The candidate should be a self-starter, able to work independently and able to participate creatively in refining program directions. Presentations at national meetings and publication of scientific results in peer-reviewed journals are expected. The candidate must have good oral and written communication skills in English, and be able to interact effectively with a broad range of colleagues.

Applicants cannot have received the most recent degree more than five years prior to the date of application appointment and must complete all degree requirements before starting their appointment.

Remarks

For more information about this position please contact Dr. Sergei V. Kalinin (sergei2@ornl.gov). Please reference this position title in your correspondence.

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/ornl-pdpm/application.htm>. Applicants should attach, in a single file, the following three components: a statement of their research expertise, curriculum vitae, and contact information for references.

This appointment is offered through the ORNL FIRST Fellows 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.