

Postdoctoral Research Associate in Laser-Based Synthesis and Diagnostics of Nanomaterials

**Materials Science and Technology Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee**

ORNL10-55-MSTD

Project Description:

The Materials Science and Technology Division at Oak Ridge National Laboratory (ORNL) is seeking a candidate to fill a postdoctoral position in the field of nanomaterials synthesis and processing by nonequilibrium, primarily laser-based, techniques. The goal of the project is to develop fundamental understanding of nonequilibrium processes involved in the synthesis of novel nanomaterials in phases or architectures which are inaccessible by other techniques. This program takes advantage of pulsed laser vaporization, pulsed laser deposition, and chemical vapor deposition facilities and associated spectroscopic and imaging diagnostics. A fraction of the time will be spent working with users at the Center for Nanophase Materials Sciences (CNMS). The position is available starting February 1, 2010 and renewable up to a total of 3 years.

The successful applicant must demonstrate knowledge in materials science and laser processing or spectroscopy. This position provides an opportunity to join an experienced team working in a highly collaborative environment on the development of new *in situ* diagnostic techniques to understand the synthesis and processing of novel nanomaterials. The position involves the development and application of *in situ* optical spectroscopic diagnostic techniques (e.g. time-resolved emission, absorption, Raman spectroscopy), mass spectrometry, as well as imaging techniques (e.g. shadow, Schlieren, fast ICCD photography) to characterize the growth conditions and kinetics of nanomaterials. Novel *ex situ* nanomaterial characterization techniques will also be developed.

Qualifications:

This position requires a Ph.D. in materials science, physics, or related field, with an emphasis on laser- or CVD-based synthesis or processing of nanomaterials or thin films, or laser spectroscopy. The applicant should have a working knowledge with lasers, optics, and spectroscopic techniques. Experience with different types of pulsed laser systems, including nanosecond, picosecond, and femtosecond laser systems is a plus, as is knowledge of MatLab and LabVIEW. Some experience with nanomaterials characterization techniques, such as scanning electron microscopy, transmission electron microscopy, and scanning probe techniques is desirable. An understanding of *ex situ* optical characterization techniques, such as spectrophotometry, fluorometry, Raman spectroscopy, etc. is also required. Excellent oral and written communication skills are necessary, 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.

Applicants cannot have received the most recent degree more than five years prior to the date of application and must complete all degree requirements before starting their appointment. Applications will be accepted until the position is filled.

Technical Questions:

Questions regarding the position can be directed to Drs. David B. Geohegan, geohegandb@ornl.gov, Alex A. Poretzky, poretzkya@ornl.gov, and Gyula Eres, eresg@ornl.gov. Please include the requisition number and title when corresponding.

How to Apply:

Qualified applicants must 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>.

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.