

**Postdoctoral Research Associate in Physics or
Engineering for Nano and Microelectromechanical
Systems Development**

**Measurement Science and Systems Engineering Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee**

ORNL10-42-MSSSED

Project Description:

The Nanosystems and Structures Group in the Measurement Science and Systems Engineering (MSSE) Division at the Oak Ridge National Laboratory (ORNL) is seeking a postdoctoral candidate to conduct research in the development of highly novel nano and microelectromechanical thermal energy conversion devices. Modeling indicates these devices can compete very favorably with other thermal-to-electrical energy conversion techniques, with efficiencies near the Carnot limit.

The candidate will also be expected to contribute to other microsystems R&D projects in the group including innovative optical and electric field detection techniques. MSSE is seeking physics or engineering graduates with training and experience in the field of nano and microsystems structures and devices. The successful candidate will work in the Nanosystems and Structures Group with a multidisciplinary team of experimental physicists and engineers in the area of nano and micro structured systems and electro-optical materials and devices. The candidate will work with researchers with similar and complimentary backgrounds in the Nanosystems and Structures Group, throughout MSSE, and across ORNL.

The candidate will be expected to work independently, lead R&D activities, develop and fabricate nano and microsystems devices and structures, and testing protocols for these devices. The candidate will also participate and make presentations at technical conferences associated with professional societies and support the publication of original work in peer-reviewed journals. Over the long term, the candidate will be expected to lead research and development project teams and work directly with sponsors.

Qualifications:

Candidates must have a Ph.D. degree in physics, material sciences, chemical or electrical engineering, or a closely related field. The candidate must have a strong working knowledge of nano and micromechanical system design, device fabrication process design and flow, and possess hands on experience in the fabrication and testing of these types of devices and structures. It is also very desirable that the candidate has experience in modeling the mechanical, electrical, thermal, and optical operation of these devices using such modeling tools as Ansys, Matlab, etc. In addition, a working knowledge of electrical circuit design, modeling and operation is desirable. We are especially interested in candidates with hands on experience in the design and fabrication of thermally actuated optical detection and energy transfer micromechanical devices. The candidate must have excellent writing skills for preparing reports, proposals, and publications/journal articles, and possess excellent

communication skills to effectively give presentations as well as to interface with project sponsors and project teams. The candidate must be a self-starter who knows how to learn and is interested in broadening his/her knowledge. Some travel will be required. Non U.S. citizens may apply for this position. 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.

Technical Questions:

Questions regarding the position can be directed to Scott Hunter at huntersr@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.