

# **Postdoctoral Research Associate in Magnetic Processing of Ferrous and Non-Ferrous Materials**

## **Materials Processing Group Materials Science & Technology Division Physical Sciences Directorate Oak Ridge National Laboratory Oak Ridge, Tennessee ORNLO9-55-MSTD**

### **Project Description:**

The Materials Processing Group in the Materials Science and Technology Division at Oak Ridge National Laboratory (<http://www.ornl.gov>) has an immediate opening for a postdoctoral fellow position. This position involves conceiving, designing, developing and investigating innovative magnetic processing experiments and methodologies for (thermo-) magnetic processing on ferrous-based and other non-ferromagnetic based materials; and requires executing experimental plans, as well as documenting and reporting research results. The candidate will conduct materials processing research using unique magnetic field processing facilities, as well as have the opportunity to utilize other more conventional arc-melting, electron-beam melting, and deformation processing equipment as needed for his/her research. Key activities for the processing of these materials include: (1) utilizing a high field (9T) magnetic processing system to develop microstructures with the desired materials performance characteristics; (2) characterizing and evaluating these processed materials utilizing TEM, FE-SEM and standard metallographic techniques; and (3) collecting, analyzing, documenting and presenting results as needed for various fundamental science and industrial applications. The efforts of this individual are expected to lead to the development of improved, advanced materials and materials performance for a wide range of applications. This individual will interact and collaborate with industry on a regular basis. Additional duties include supervision of technicians, contributing to and developing new research initiatives, writing technical reports and open literature publications, and technical management of research projects.

The successful candidate will be expected to conduct research in the above areas and interface and partner with other researchers and technical staff within the organization and from other disciplines: (1) to conceive, design, develop, fabricate and test creative methods to handle and magnetically process both ferrous and non-ferrous based materials; (2) to model materials and their performance; and (3) to produce and characterize the stated materials. All applicants should exhibit excellent oral and written technical communication skills.

### **Qualifications:**

A Ph.D. in Metal Physics, Engineering Physics, Materials Science and Engineering, or an equivalent field is required. At least two years of demonstrated expertise/experience with magnetic materials and materials processing for ferrous and non-ferrous materials; an understanding of and at least two years of demonstrated experience in multiple microstructural characterization and analysis techniques; and the ability to understand fundamental principles unique to magnetic processing technologies is required. Candidates also must have demonstrated at least two years of experience in processing materials,

thermal processing, and alloy design as demonstrated by a track record (papers, patent submissions, presentations, etc). A background in the application of Local Spin Density Functional theory (or related approach) and/or molecular dynamic modeling to magnetic materials is highly desirable. The position requires good written and oral communication skills. Computer proficiency in word processing, presentation graphics, and spreadsheet programs is required.

Appointment is for a full-time one-year position, with potential for renewal, dependent on funding availability. All degree requirements must be completed before starting the appointment. *U.S. citizenship preferred.*

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:**

Gail M. Ludtka, Ph.D., email: [ludtkagm@ornl.gov](mailto:ludtkagm@ornl.gov); mail to: MS 6080, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6080.

**How to Apply:**

Qualified applicants may apply online at [https://www2.ornl.gov/ORNL\\_POST/](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>. When applying for this position, please reference the position title and number.

This appointment is offered through the ORNL Postdoctoral Research Associates Program and is administered by Oak Ridge Associated Universities (ORAU). This appointment 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.