Sandia National Laboratories

LIVERMORE, CALIFORNIA

POSITION: Post-Doctoral Appointee – Mechanical Metallurgy/Fracture Mechanics/Hydrogen Effects

JOB ID: 655323

MANAGER: Jonathan Zimmerman

The Post-Doctoral Appointee Program is designed to recruit outstanding Ph.D. applicants to assist a line organization in meeting its mission objectives and to provide a professional technical work environment for the employee. The Ph.D. must have been conferred within one to five years prior to employment. These assignments are for a one-year period, with the option at management's discretion to serve no more than five additional one-year assignments.

We are seeking a materials scientist, metallurgist or mechanical engineer (or similar) who has recently earned their Ph.D. to collaborate with staff on innovative fracture and fatigue-based experiments that identify mechanisms responsible for deformation and failure of structural materials – particularly metals – in hydrogen and gas environments. The individual will be expected to collect, analyze and interpret mechanical property data with the aim of advancing the fundamental understanding of structure-property relationships of materials in high-pressure gaseous hydrogen.

On any given day, you may be called on to:

- Conduct research on the effects of gaseous hydrogen on deformation, fracture and fatigue of structural metal alloys and other materials
- Develop and execute experiments using servo-hydraulic mechanical test frames on materials that are either thermally pre-charged in high-pressure hydrogen gas or tested in high-pressure hydrogen gas
- Use fractography and other characterization techniques in conjunction with mechanical testing to define processing-structure-property relationships for structural materials
- Interact with stakeholders to improve the understanding of materials behavior in extreme environments and to apply scientific principles to enable engineering solutions that advance commercial applications
- Communicate your findings to colleagues, customers and the larger scientific community through presentations, technical reports and articles suitable for publication in high-impact journals

QUALIFICATIONS

Required:

- A PhD in materials science, metallurgical engineering, mechanical engineering, or a related field.
- A record of first-author or co-authored scientific publications in peer-reviewed journals and presentations at scientific conferences.

Desired:

- Knowledge and experience with fracture mechanics and fatigue testing methodologies
- Experience with servo-hydraulic mechanical test frames and data acquisition techniques
- Ability to use experimental results to develop structure-property relationships of structural alloys
- Familiarity with hydrogen-metal interactions and effects on mechanical properties of structural metals
- Familiarity with microstructural characterization techniques including optical and electron microscopy
- Good communication skills

HOW TO APPLY

On the Sandia Careers Web page (http://www.sandia.gov/careers) search for JO655323 (advanced search). Click the "Apply Now" button and follow the instructions to upload a resume, and complete the submission process to indicate your interest in this position.

ABOUT OUR TEAM

The Hydrogen and Materials Science Department provides expertise to both Sandia and the Nation on the interaction of hydrogen (and its isotopes) with all types of materials. The Department performs scientific and engineering research to develop fundamental understanding on the aging of materials in gaseous environments, including hydrogen, and applies this understanding to determine its effects on the performance and reliability of materials relevant to Sandia's nuclear weapons and energy missions. Department staff conducts research and development primarily for two important customers: 1) Gas Transfer Systems (GTS) for the Nation's Nuclear Weapons Enterprise; and 2) the Fuel

Department's work covers a broad range of areas, including analyzing hydrogen's long-term impact on materials used in fuel cell and gas transfer systems, developing solar thermochemical technology for hydrogen production, assessing the suitability of materials for hydrogen storage, advising hydrogen safety codes and standards, maintaining and enhancing nationally recognized core and enabling capabilities in hydrogen science, and initiating hydrogen storage and fuel cell market transformation strategies to bring technological advancements towards broad-based commercial availability.

ABOUT SANDIA

Sandia National Laboratories is the nation's premier science and engineering lab for national security and technology innovation. We are a world-class team of scientists, engineers, technologists, postdocs, and visiting researchers—all focused on cutting-edge technology, ranging from homeland defense, global security, biotechnology, and environmental preservation to energy and combustion research, computer security, and nuclear defense. To learn more, visit http://ca.sandia.gov/.

SECURITY CLEARANCE

Position requires a Department of Energy (DOE) granted Q-level security clearance.

Sandia is required by DOE directive to conduct a pre-employment background review that includes personal reference checks, law enforcement record and credit checks, and employment and education verifications. Applicants for employment must be able to obtain and maintain a DOE Q-level security clearance, which requires U.S. citizenship.

Applicants offered employment with Sandia are subject to a federal background investigation to meet the requirements for access to classified information or matter if the duties of the position require a DOE security clearance. Substance abuse or illegal drug use, falsification of information, criminal activity, serious misconduct or other indicators of untrustworthiness can cause a clearance to be denied or terminated by the DOE, rendering the inability to perform the duties assigned and resulting in termination of employment.

BENEFITS

At Sandia you will receive many benefits as a valued employee of a premier national multi-program engineering and science research laboratory. In our Total Rewards package you will enjoy competitive pay, great benefits, a stimulating, positive environment and learning opportunities that will help build your career. More information may be found on our Careers website.

EEO

Sandia National Laboratories is an Equal Opportunity Employer M/F/D/V.