



**POSITION:** Materials/Environmental Interactions Scientist

**JOB ID:** 669481

**MANAGER:** Jonathan Zimmerman

We are seeking R&D technical staff to focus on materials science problems with applications in the areas of alternative energy and national security. Your work will emphasize experimental studies of how different chemical environments (including hydrogen, tritium, supercritical CO<sub>2</sub>, and/or various salts) change material microstructure and properties. The goals would be to understand the kinetics of these chemical/material interactions and how high temperatures and/or radiation might influence chemical transport. You will develop complementary collaborative research that includes how materials may be used in fission or fusion reactors, candidate energy storage systems (such as fuel cells), and/or advanced power generation systems (concentrated solar power and supercritical CO<sub>2</sub> power cycles)

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

- Design and execute laboratory experiments to probe chemical transport in different materials and compatibility of materials in these environments
- Design and plan “capsule” experiments to study deuterium transport in research reactors
- Characterize material and microstructure in order to understand how they influence diffusivity and trapping of hydrogen isotopes and compatibility in chemical environments
- Provide experimental data to inform hydrogen transport models at various length scales
- 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 metallurgy, materials science and engineering, physics, nuclear engineering, or a closely related field
- A record of first-author or co-authored scientific publications in the above areas within peer-reviewed journals and presentations at scientific conferences
- Ability to obtain and maintain a Department of Energy Q-level security clearance

### Desired:

- 5+ years research experience post-graduate
- Laboratory experience characterizing the kinetics of material changes using techniques such as thermal desorption spectroscopy, optical and electron microscopy/spectroscopy, etc.
- Experience with instrument design (including safety planning) for materials characterization and high temperature chemical exposure experiments
- Prior work involving research and/or commercial energy reactors
- Deep understanding of physical and mechanical metallurgy

## HOW TO APPLY

On the Sandia Careers Web page (<http://www.sandia.gov/careers>) search for JO669481 (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 Cell Technologies Office (FCTO), part of DOE's Office of Energy Efficiency and Renewable Energy. The 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, with teams of specialists focused on cutting-edge work in a broad array of areas. Some of the main reasons we love our jobs:

- Challenging work with amazing impact that contributes to security, peace, and freedom worldwide
- Extraordinary co-workers
- Some of the best tools, equipment, and research facilities in the world
- Career advancement and enrichment opportunities
- Flexible schedules, generous vacations, strong medical and other benefits, competitive 401k, learning opportunities, relocation assistance and amenities aimed at creating a solid work/life balance\*

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- These benefits vary by job classification.

## 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 federally 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. As a national laboratory funded by a U.S. government agency, Sandia is subject to federal laws regarding illegal drug use. Marijuana use, including for medicinal purposes, is a violation of federal law, even in places where it does not violate state law. Illegal use of a controlled substance within the last 12 months will automatically disqualify candidates from consideration for employment or for a Department of Energy security clearance.

## 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.

Sandia National Laboratories is an Equal Opportunity Employer M/F/D/V. If this position requires a security clearance granted by the U.S. Department of Energy (DOE), U.S. citizenship and employee eligibility for clearance processing will be required at the time of hire. If you hold dual citizenship and accept a job offer for a position that requires a DOE-granted security clearance, you may be asked by DOE to renounce your foreign citizenship and retain only your U.S. citizenship.