Job Title: Postdoctoral Researcher in Dispersion and Combustion of Hydrogen

Site Location: Livermore, CA

Job ID: 673519

Job Closing Date: 11/07/2020


This posting will be open for application submissions for a minimum of seven (7) calendar days, including the ‘posting date’. Sandia reserves the right to extend the posting date at any time.

We are seeking a postdoctoral researcher to join the Hydrogen and Materials Science department!

We need a postdoctoral appointee to collaborate with staff on experiments that advance our fundamental understanding of hydrogen dispersion, ignition and combustion, and to validate and improve predictive physical models of these phenomena. These models are in turn used to quantitatively assess the risks of unintended leaks from hydrogen infrastructure for fueling of fuel cell electric vehicles and other applications. We use this understanding, data and models to inform safety, codes and standards for cryogenic and high-pressure hydrogen systems.

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

- Collectively design and execute experiments to study aspects of hydrogen dispersion and ignition behavior
- Assist in developing and applying innovative optical/laser-based diagnostics to measure characteristics of hydrogen releases in hypothetical accident scenarios
- Analyze experimental data, using image processing and/or developing analysis methods
- Use data to inform and validate mathematical models for hydrogen dispersion (including liquid hydrogen pooling and vaporization), ignition and flame characteristics
- Communicate your findings through presentations, technical reports and high-impact journal articles

The Hydrogen and Materials Science department is committed to attracting, retaining and cultivating an outstanding workforce representing a broad group of people and perspectives. We share this common vision by fostering mutual respect among staff, post-docs and interns from diverse backgrounds. Our team works together to accomplish extraordinary results!

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*


*These benefits vary by job classification.

EEO Statement:

All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, disability, or veteran status and any other protected class under state or federal law.

Required:

- PhD in mechanical engineering, physics, or a closely related field
- Laboratory research experience in the dispersion, ignition and/or combustion of fluids (gas or liquid)
- A record of first-author or co-authored scientific publications in the above areas within peer-reviewed journals and presentations at scientific conferences

Desired:

- A strong understanding of reacting and non-reacting turbulent flames and flows
- A strong understanding of heat transfer and thermal sciences
- Demonstrated ability to implement laser and/or optically based diagnostics
- Experience developing and working with pressurized gases and cryogenic systems
- Proficiency with data processing, including image analysis with Python or Matlab
- Experience with experimental design, including safety planning
- Experience developing and validating models of fluid-flow systems
Department Description:

We are the Hydrogen and Materials Science team! We provide expertise to both Sandia and the Nation on the interaction of hydrogen (and its isotopes) with all types of materials. We perform 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. Our work covers a broad range of areas, including analyzing hydrogen’s long-term impact on materials and maintaining and enhancing nationally recognized core and enabling capabilities in hydrogen isotope science.

Security Clearance:

This position does not currently require a Department of Energy (DOE) security clearance.

Sandia will conduct a pre-employment drug test and background review that includes checks of personal references, credit, law enforcement records, and employment/education verifications. Furthermore, employees in New Mexico need to pass a U.S. Air Force background screen for access to Kirtland Air Force Base. Substance abuse or illegal drug use, falsification of information, criminal activity, serious misconduct or other indicators of untrustworthiness can cause access to be denied or terminated, resulting in the inability to perform the duties assigned and subsequent termination of employment.

If hired without a clearance and it subsequently becomes necessary to obtain and maintain one for the position, or you bid on positions that require a clearance, a pre-processing background review may be conducted prior to a required federal background investigation. Applicants for a DOE security clearance need to be U.S. citizens. If you hold more than one citizenship (i.e., of the U.S. and another country), your ability to obtain a security clearance may be impacted.

Members of the workforce (MOWs) hired at Sandia who require uncleared access for greater than 179 days during their employment, are required to go through the Uncleared Personal Identity Verification (UPIV) process. Access includes physical and/or cyber (logical) access, as well as remote access to any NNSA information technology (IT) systems. UPIV requirements are not applicable to individuals who require a DOE personnel security clearance for the performance of their SNL employment or to foreign nationals. The UPIV process will include the completion of a USAccess Enrollment, SF-85 (Questionnaire for Non-Sensitive Positions) and OF-306 (Declaration of for Federal Employment). An unfavorable UPIV determination will result in immediate retrieval of the SNL issued badge, removal of cyber (logical) access and/or removal from SNL subcontract. All MOWs may appeal the unfavorable UPIV determination to DOE/NNSA immediately. If the appeal is unsuccessful, the MOW may try to go through the UPIV process one year after the decision date.

This postdoctoral position is a temporary position for up to one year, which may be renewed at Sandia's discretion up to five additional years. The PhD must have been conferred within five years prior to employment.
Individuals in postdoctoral positions may bid on regular Sandia positions as internal candidates, and in some cases may be converted to regular career positions during their term if warranted by ongoing operational needs, continuing availability of funds, and satisfactory job performance.