

Fire Science & Technology Laser Diagnostics

Postdoctoral Appointee



Location: Albuquerque, NM
Full Time, Temporary

What Your Job Will Be Like:

We are seeking a Postdoctoral Appointee to support laser diagnostic programs at the Thermal Test Complex (TTC), a one-of-a-kind national asset.

Key functions of this role include, but are not limited to:

- Working with a dynamic team of fire scientists, engineers, technologists, and trades people to design, build, and perform fire and radiant heating experiments supporting a diverse set of missions, including nuclear weapons development and qualification missions
- Contribute to multiple research projects in the areas of combustion, fire, pyrolysis, and multiphase flows with experiments conducted at lab-scale and in Sandia's unique large-scale testing facilities
- Conduct independently guided research and perform analysis of large experimental data sets using computer programming and automation
- Work with the mentorship of Sandia staff to develop and field diagnostic tools, and to assist in the publication and presentation of research results to the scientific community
- Providing insight into physical phenomena of fires and the fate of objects exposed to abnormal thermal environments, generating data for creating and validating heat transfer and thermal response models, and qualifying the safety and performance of nuclear weapons and other systems of relevance to national security

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.

Qualifications We Require:

- PhD, conferred within 5 years prior to employment, in engineering, physics, chemistry or a related discipline
- Experience performing experimental research utilizing laser-based diagnostics
- Experience with optics and background in laser-based diagnostic techniques with application to fluid and thermal science problems
- Experience with computer programming skills/experience in LabVIEW, Matlab, C++, FORTRAN, or similar language
- Excellent oral and written communication skills, as evidenced by a demonstrated record of peer-reviewed journal publications and conference presentations
- Ability to obtain and maintain a DOE Q level clearance

Qualifications We Desire:

- Experience in the design, fabrication and/or deployment of small or large optical, mechanical, and/or electrical test systems
- Experience with one or more of the following diagnostic approaches:
 - Laser-induced incandescence (LII)
 - Laser-induced fluorescence (LIF)
 - Particle-image velocimetry (PIV)
 - Thermographic phosphors
 - Infrared imaging or pyrometry
- Experience in computational or experimental analysis of fire, combustion, pyrolysis, or multi-phase flow environments
- Ability to independently guide research while working in the context of a larger team
- Ability to obtain and maintain a sigma 15 clearance (subject to random polygraph)

About Our Team:

The Fire Science and Technology Department performs experimental and phenomenological fire research to support Sandia's national security mission. The main focus of the department is to ensure the safety and security needs of nuclear weapons in normal and abnormal thermal environments. The department offers a spectrum of computational and experimental capabilities, combined with a problem-solving focus, for addressing fire-related challenges throughout the government, civilian, and industrial sectors. Efforts in the computational arena include development of physics-based subgrid models for phenomena important to fire dynamics, fire suppression and fire detection. The department maintains and operates state-of-the-art facilities for large-scale radiant heat, open-air, and enclosed fire testing. These facilities are used in conjunction with new diagnostics and experimental capabilities developed and employed to provide data for discovery, validation, and system qualification. The group interacts extensively with complementary technical organizations within the Engineering Sciences Center and across the laboratory. Staff members are also involved in national and international collaborative endeavors with colleagues in academia and government.

To Apply:

Visit:
sandia.gov/careers
and search for job
number **656451**

About Sandia:

Sandia provides employees with a comprehensive benefits package that includes medical, dental, vision, and a 401(k) with company-match. Our culture values work-life balance; we offer programs such as flexible work schedules with alternate Fridays off, on-site fitness facilities, and three weeks of vacation. In addition, Sandia/California enjoys close proximity to San Francisco, the Silicon Valley, first-tier universities, and diverse cultural and year-round recreational opportunities.

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, post docs, 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.