

# R&D Thermal Sciences Analysis Engineer (Experienced)



**Location: Albuquerque, NM**  
**Full-Time, Regular**

## What Your Job Will Be Like

We are seeking a mid-career or highly-experienced professional with an interest or experience in thermal engineering/sciences and/or software development in thermal sciences. With time, the candidate will be expected to develop the capability to provide modeling and analysis support for multiple applications in a fast-paced environment.

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

- Perform application-driven thermal analyses while contributing to research directions in support of Sandia's weapons, space, and energy programs
- Provide modeling and simulation support for multiple applications
- Perform numerical modeling, to include solid modeling, meshing, and simulation software
- Develop software functions/subroutines to customize analysis software and/or to analyze computational results

This position is classified as R&D Computer Science.

## Qualifications We Require

- Bachelor's and Master's degree in Mechanical Engineering, Chemical Engineering, Nuclear Engineering, Aerospace Engineering, Computer Science or related discipline with a focus on continuum heat transfer and thermal sciences, plus 2 years' experience; or PhD in Mechanical Engineering, Chemical Engineering, Nuclear Engineering, Aerospace Engineering, Computer Science or related discipline with a focus on continuum heat transfer and thermal sciences
- Experience in conduction, convection, and/or radiation heat transfer
- Experience with modeling and simulation tools
- Ability to obtain and maintain a DoE Q clearance

## Qualifications We Desire

- PhD in Mechanical Engineering, Chemical Engineering, Nuclear Engineering, Aerospace Engineering, Computer Science or related discipline with a focus on continuum heat transfer and thermal sciences
- Experience in coupled thermal-mechanical FEM analyses, Validation & Verification and Uncertainty Quantification (V&V/UQ) techniques applied to FEM analyses and thermal or fluids finite element software development
- Strong academic credentials and personal/professional references
- Experience in the development and/or application of finite element analysis, solid modeling, and meshing software (Comsol, Ansys, Fluent, Solidworks, Pro-E, Patran, and/or other thermal analysis software)
- Strong communication, organizational, and problem-solving skills
- Experience working both independently and in a team environment
- Ability to organize and prioritize work requirements while meeting customer deadlines in a dynamic environment

## About Our Team

The Thermal Sciences and Engineering Department at Sandia National Laboratories conducts a broad range of technical activities focused on heat transfer, numerical analyses, and related capabilities. Our work spans fundamental research and development to engineering analysis of applied problems. Our basic research activities focus on developing the scientific insights and physical models that will enhance our predictive simulation capabilities. Representative research areas include: radiation heat transfer, heat transfer in the presence of decomposing foams, heat transfer associated with fires (hydrocarbons, propellants, or composite materials), and the coupling of heat transfer with structural response and failure. Our engineering analyses support a wide variety of projects in the areas of environments specification, design, performance, and system safety across a range of applications of interest to Sandia. Representative projects include assessing thermal response for weapons' safety, modeling and controlling thermal environments for space applications, solar thermal/chemical applications, and manufacturing processes. Projects range from small modeling efforts requiring rapid and agile turnaround to high consequence applications requiring large thermal models with heavy emphasis on credibility of model results by exercising and advancing sound V&V/UQ practices. We work closely with experimentalists and code developers to improve the fidelity of supporting tests and to ensure needed code functionality is available.

## To Apply:

Visit:  
[sandia.gov/careers](http://sandia.gov/careers) and  
search for job number  
**658119**

## 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.

# Hypersonic Fluids Diagnostics Postdoctoral Appointee



**Location: Albuquerque, NM**  
**Full-Time, Temporary**

## What Your Job Will Be Like

We are seeking a Postdoctoral Appointee to support the development and use of advanced fluids diagnostics for experiments primarily in Sandia's Hypersonic Wind Tunnel (Mach 5, 8, and 14), with some work involving the Trisonic Wind Tunnel as well (Mach 0.5 – 3.0). Experiments will utilize modern optical diagnostics to obtain high-fidelity data to enable physical discovery and support the development of computational models. Opportunities exist to collaborate on research spanning multiple disciplines, including experimental fluid dynamics, shock/boundary-layer interactions, fluid/structure interactions, signal processing, image processing, and novel diagnostics for hypersonic flows.

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

- Working with the mentorship of Sandia staff to design, conduct, and analyze experiments as part of established research programs
- Assisting in the publication and presentation of results to the scientific community
- Performing all duties in compliance with operational safety, security and quality guidelines

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 Mechanical Engineering, Aerospace Engineering, or other related engineering or natural science field
- Experience with experimental fluid dynamics and wind-tunnel testing
- Experience with the design, development, implementation, and maintenance of unique hardware for wind-tunnel experimentation and optical diagnostic systems
- Experience with laser-based flow diagnostics such as PIV, PLIF, CARS, FLEET, PSP, TSP or similar techniques, or experience with other optical diagnostics such as DIC, BOS, or Schlieren imaging
- Ability to obtain and maintain a DoE Q clearance

## Qualifications We Desire

- Experience with instrumentation electronics and Labview, Matlab, Tecplot, Solidworks or equivalent software packages
- Experience with surface measurement sensors for pressure, temperature, etc
- Experience with signal processing or image processing algorithms
- Experience with unsteady hypersonic flow experiments, fluid-structure interactions, or shock-boundary layer interactions
- Thorough knowledge of and applied experience with scientific and engineering methods and with discipline's standards for the ethical conduct of research
- Strong verbal and written communication skills and an ability to interact well with fellow technical workers with diverse technical backgrounds

## About Our Team

The Aerosciences Department offers challenging and important work relating to national security in R&D and technology applications in aerodynamics, aerothermodynamics, compressible fluid mechanics, and flight dynamics. Our primary mission supports U.S. Department of Energy Defense Programs, and aerosciences projects funded through the U.S. Department of Defense, DARPA, NASA, and industry.

Our projects span the Mach number range from subsonic through hypersonic and involve systems ranging from aircraft released ordinance to reentry systems and rocket systems. Technical activities include experimental, analytical, and computational efforts plus support of flight test activities, both pre-flight/post-flight analyses and field test operations. The Aerosciences Department maintains a strong balance of research and development activities and works synergistically with other organizations at Sandia to meet current and future customer needs.

## To Apply:

Visit:  
[sandia.gov/careers](https://sandia.gov/careers) and search for job number **658089**

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**Location: Albuquerque, NM**  
**Full-Time, Regular**

## What Your Job Will Be Like

We are seeking an Aerothermodynamics Analyst to support lab-wide efforts including flight vehicle development and flight test projects by performing research, capability development, and analyses in the field of aerothermodynamics. Opportunities exist to conduct research spanning multiple disciplines, including flowfield modeling, heat transport, ablation modeling, and aerosciences.

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

- Analyzing proposed supersonic and hypersonic flight vehicles to determine general design and thermal protection needs
- Analyzing flight test data to determine vehicle thermal performance
- Developing new and extending existing aerothermodynamic analysis capabilities as needed to deal with constantly developing flight vehicle requirements
- Contributing to the development of future, high fidelity, state-of-the-art analysis capabilities for aerothermodynamic computations

This job is classified as an R&D Mechanical Engineer.

## Qualifications We Require

- Master's degree in Mechanical Engineering, Aerospace Engineering, or other related engineering or natural science field
- Bachelor's degree in a related STEM field
- Two years' related experience
- Experience with fluid dynamics modeling
- Experience with the Linux operating system
- Experience with a high-level programming language such as FORTRAN, C, or C++
- Ability to obtain and maintain a DoE Q clearance

## Qualifications We Desire

- PhD in Mechanical Engineering, Aerospace Engineering, or other related engineering or natural science field
- Experience with Matlab, Python, scripting languages and grid generation software
- Experience with parallel programming
- Experience/familiarity with Verification and Validation and Uncertainty Quantification
- Thorough knowledge of and applied experience with scientific and engineering methods and with discipline's standards for the ethical conduct of research
- Strong verbal and written communication skills and an ability to interact well with fellow technical workers with diverse technical backgrounds

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