



POSITION: Engineering Sciences R&D

JOB ID: 59953

MANAGER: Chris Moen

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DEPARTMENT DESCRIPTION

The Thermal/Fluid Science and Engineering Department specializes in fluid mechanics and heat and mass transfer. This work spans theory and scientific computing to mechanical design and applied experimentation. The department plays three primary roles in science-based engineering at Sandia: (1) developing new computational methods and tools to describe fluid mechanics and heat transfer; (2) performing computational analysis to predict the design performance of engineered systems; and (3) designing, building, and testing prototype systems. Recent department activities include hydrogen storage and safety technology, combustion and heat transfer modeling, and materials process modeling. Our department is part of the Physical and Engineering Sciences Center, which has about 135 staff members, including 91 Ph.D.s. Our center's strength lies in our ability to tackle problems from a science-based, multidisciplinary perspective. The center provides solutions to a broad spectrum of research challenges involving engineered materials, micro/nanosciences, and computational modeling and simulation of materials and processes. Research and development supports systems engineering for nuclear weapon stewardship, energy and environmental challenges, homeland security needs, and technological business development.

JOB DESCRIPTION

We seek a computational engineer to carry out analysis and research in heat and mass transfer. The research component focuses on gaining understanding of physical processes through theory and numerical experiments. The analysis component is twofold: (1) evaluating and optimizing mechanical designs and prototype hardware and (2) understanding interactions between components of complex systems. The engineer may work on several tasks concurrently and must be able to apply research results to impact engineering development projects. Current projects range from weapon system safety and security to alternative fuel infrastructures and energy systems engineering. We work on a dynamic and ever-changing set of problems. Successful candidates will be flexible and demonstrate the ability to rapidly master new engineering science topics.

QUALIFICATIONS

We are interested in candidates with core skills in conduction and radiation heat transfer and additional skills in forced and natural convection heat transfer, chemically reacting flows, multiphase flow systems, material and chemical processes, hydrogen technology, biofuels, and/or renewable energy systems. An M.S. in mechanical engineering, chemical engineering, or a related engineering science and experience in the numerical simulation of fluid mechanics and heat transfer are required, but a Ph.D. is desired. Experience with computational fluid dynamics—both compressible and incompressible flows—is desired, as is experience with methods development and high-performance computing. Candidates should be able to synthesize information from physical and numerical experiments to solve engineering problems, employing an appropriate combination of analytical and computational techniques. Candidates must have a publication record and must demonstrate the ability to make original contributions to the engineering science of heat and mass transfer. Candidates must have strong communication, organizational, and problem-solving skills. Candidates must also demonstrate the ability to work in a team environment and contribute to fast-paced engineering projects, providing engineering design guidance and interpretation of experiments.

Candidate must be able to obtain a U.S. Department of Energy security clearance for this position. To obtain a security clearance, U.S. citizenship is required.

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