R&D Staff in Computational Physics

Sandia National Laboratories

Location: Livermore, CA – Job Type: Full Time, Regular

What Your Job Will Be Like

We are seeking a computational physics researcher to carry out high-fidelity simulations of turbulent reacting flows on petascale heterogeneous computer architectures.

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

- Work on reduced order modeling of turbulent reacting flows with multi-physics including sprays, particulates, and detailed chemistry of renewable fuels (i.e. hydrogen, ammonia, e-fuels, sustainable aviation fuels) relevant to their efficient utilization in engines for off-road transportation, propulsion and dispatchable power generation.
- Model high-speed flows with non-equilibrium chemistry.
- Collaborate with other researchers across Sandia, at other national labs, and in academia.

The longer-term goal of this position is to maintain and strengthen a world-recognized program in computational physics and simulation as part of a broader team of physicists, chemists, and engineers. It is anticipated that this research will result in influential publications in major scientific journals and widespread recognition within the international scientific research community, as well as important contributions to the long-term energy and environmental mission objectives of the U.S. Department of Energy.

Qualifications We Require

- PhD in engineering, computational sciences, physical sciences, mathematics, or closely related field
- Expertise in high-performance scientific computing
- Expertise in high-fidelity simulation of turbulent flows
- Strong record of scientific accomplishment, demonstrated by publications in peer-reviewed literature
- Ability to obtain and maintain a DOE Q security clearance

Qualifications We Desire

- Experience in programming on graphics processing units (GPUs)
- Experience in applying machine learning (ML) methods and uncertainty quantification (UQ)
- Experience in simulation of chemically reacting flows, including spray, soot, and radiation modeling
- Excellent written and verbal communication skills

About Our Team

The Plasma & Reacting Flow Science department at Sandia primarily works on projects funded by the U.S. Department of Energy Office of Science to address needs surrounding both high temperature and low temperature plasma phenomena, combusting flows, reacting gas-solid interfaces, uncertainty quantification (UQ), and related topics such as scientific machine learning. We operate innovative experimental laboratories, conduct work at the DIII-D tokamak, and use both local computer clusters and the DOE Leadership Class supercomputers to conduct massively parallel simulations.

Apply online at:
sandia.gov/careers
Job #: 685391

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 work arrangements for many positions include 9/80 (work 80 hours every two weeks, with every other Friday off) and 4/10 (work 4 ten-hour days each week) compressed workweeks, part-time work, and telecommuting (a mix of onsite work and working from home)
• 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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