Postdoctoral Researcher
CFD modeling of biomass combustion and emissions

Location: Livermore, CA (USA)
Organization: Physical and Life Sciences Directorate, Materials Science Division

Job Description
We have an opening for a **Postdoctoral Researcher** to conduct research in computational fluid dynamics (CFD) modeling of biomass combustion for wildfire rate of spread and emission predictions. Key aspects involve the development and use of multi-physics simulation codes coupled with reaction kinetics to improve the understanding of biomass combustion process. You will actively participate in the research to leverage high-performance computing (HPC) to perform CFD simulations and develop novel numerical techniques for multi-phase modeling. This position is in the Reaction Dynamics Group of the Materials Science Division.

In this role you will
- Conduct research in and development of one or more of the following areas: computational fluid dynamics, reactive chemistry, numerical methods, and biomass modeling.
- Develop and apply numerical tools to simulate biomass combustion by combining multidimensional fluid mechanics with detailed chemical kinetics.
- Validate results from simulations of biomass combustion against experimental measurements as available.
- Identify sensitive chemistry and physics sub-models in simulations, collaborate with multidisciplinary team members to improve the overall performance of simulations.
- Conduct detailed analysis of biomass fuels and their emissions.
- Document research, publish papers in peer-reviewed journals, and present results at conferences.
- Pursue complementary research interests and interact with a broad spectrum of scientists internally and externally.
- Perform other duties as assigned.

Qualifications
- PhD in Chemical Engineering, Mechanical Engineering, Aerospace Engineering, or a related field.
- Demonstrated solid background and expertise in reacting flow simulations and multi-physics modeling (e.g., CFD).
- Knowledgeable of Eulerian modeling and numerical methods.
- Ability to thrive autonomously; be pro-active in solving inevitable roadblocks, have a persistent attitude, and self-train when necessary.
- Ability to develop independent research projects through publication of peer-reviewed literature.
- Proficient verbal and written communication skills as reflected in effective presentations at seminars, meetings and/or teaching lectures.

- Initiative and interpersonal skills with desire and ability to work in a collaborative, multidisciplinary team environment.

Qualifications we desire

- Experience with scientific computing algorithm development, C/C++ and Python, and Linux.
- Experience in development and application with OpenFOAM or other CFD codes (e.g. Ansys Fluent). Experience with multi-dimensional Eulerian simulations is a plus.
- Experience in modeling biomass combustion.

Security Clearance: None

Note: This is a two-year Postdoctoral appointment with the possibility of extension to a maximum of three years. Eligible candidates are those who have been awarded a PhD at time of hire date.

Application website: **https://www.llnl.gov/join-our-team/careers/find-your-job/all/all/3743990000610566**