**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](https://www.llnl.gov/join-our-team/careers/find-your-job/all/all/3743990000610566)