

UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

BERKELEY, CALIFORNIA 94720-1740

Job Description

Job Title: Postdoctoral Researcher in Clean Energy Combustion Processes Simulations
Location: Berkeley, California USA
Full/Part Time: Full-Time: open immediate until filled
One year and renewable for additional two more years

About University of California at Berkeley, Combustion Modeling Lab (CML)

At the CML, we work with universities, national labs, and companies from across the country and around the world, including Germany, Spain, The Netherlands, and Norway among many others. Our work focuses on advanced simulations of combustion processes that include fluid dynamic, chemical kinetic, and heat transfer components. We utilize custom in-house computational solvers as well as commercial software packages for modeling advanced combustion problems. We closely collaborate with experimental researchers so that experimental data can guide our simulations and our simulations can guide experiments. To learn more, visit <http://firebrand.me.berkeley.edu/>.

Job Summary

CML is recruiting an outstanding Ph.D. researcher to conduct R&D on an **advanced power generation** technology. As a researcher, you are expected to design, create, and optimize numerical models capable to simulate performances of real systems. You are expected to perform 3D CFD engine combustion simulations, build 0D and 1D process models to assist in the development of plant control algorithms, and propose cost-effective experimental test matrices. This role demands a team-spirited individual, able to coordinate and collaborate with a multidisciplinary team and assist on multiple projects simultaneously. The present research subject is sponsored by the U.S. Department of Energy and will be conducted in close collaboration with our industry partners at Noble Thermodynamics (www.noblethermo.com).

Keywords

Numerical modeling, Simulations, CFD, chemical kinetics, heat transfer, power generation processes, energy, combustion, FEA.

Core Responsibilities

- Develop and validate 0D, 1D and 3D energy and power plant numerical models.
- Carefully create simulations and experimental test plans to support the identification of key dynamic characteristics of the power and balance of plant systems.
- Conduct detailed analysis of simulation and test results to draw in-depth conclusions about operating characteristics.
- Enhance analytical practices to improve model accuracy and increase execution speed.
- Coordinate closely with design and control engineers.
- Contribute to the generation of innovative ideas, develop project plans, and write and submit research project proposals.

Qualifications

- Ph.D. degree in Mechanical Engineering or a similar engineering field from an accredited institution with a strong interest and expertise in the fields of numerical simulation and reciprocating engine combustion modeling.
- Mature understanding of engine/power system design principles and R&D methodology.
- Demonstrated experience with CFD tools and associated model validation methodologies.
- Demonstrated experience with engineering programming languages (e.g. Matlab, Python, Fortran, C, C++).
- Demonstrated ability to operate and thrive in a collaborative as well as independent, dynamic, fast-paced research laboratory environment.
- English language proficiency and effective verbal and written communication skills.

Benefits

The University of California at Berkeley offers Postdoctoral Scholars a health and welfare package which includes medical, dental, vision, life, AD&D, short term disability, and voluntary long term disability. The University of California at Berkeley contemplates 13 days of holidays and provides 24 days of paid time off. Other benefits include parental leave and traveler insurance among others. More information can be found [here](#).

EEO

University of California at Berkeley is an Equal Opportunity Employer of qualified women, minorities, individuals with disabilities and protected veterans.

Contact Information:

Please send your cover letter and resume to Prof. J.Y. Chen via email at j_y_chen@berkeley.edu