

## Postdoc Opening on the Physical Modeling and CFD Simulation of Turbulent Plasma Assisted Combustion at the University of Minnesota

The University of Minnesota seeks outstanding candidates for a postdoctoral associate to carry out research in the Physical Modeling and CFD Simulation of Turbulent Plasma Assisted Combustion (PAC) for flare gas reforming to achieve near-zero methane emissions. Positions are generally **up to two years** but can be further renewed, depending on funding. The start date is **the earlier the better**, but applications will be reviewed until the positions are filled.

**Description of Tasks and Duties:** Develop advanced physical models, numerical schemes, and CFD techniques for the DNS and LES of turbulent plasma assisted combustion. The postdocs will also have opportunities to participate in other exciting research conducted by both labs.

### Basic qualifications:

- A Ph.D. in Mechanical Engineering, Aerospace Engineering, or other closely-related discipline.
- Strong publication record as a first author in peer-reviewed journal papers.
- Ability and high self-motivation to work productively, both independently and as part of a diverse team.
- Excellent verbal and written communication skills in English.

### Required Qualifications:

- Demonstrated experience in the modeling and simulation of turbulent combustion and/or 2D/3D PAC/nonequilibrium plasma (laminar is OK).
- Demonstrated experience with object-oriented programming using C++, Fortran 90, and MPI.
- Demonstrated coding experience with chemical kinetics using OpenSMOKE++, Cantera, ChemKin, or FlameMaster.

### Preferred Qualifications:

- Prior experience of coding in OpenFOAM and/or Pele for turbulent combustion CFD.
- Prior experience of modeling and simulation of PAC or nonequilibrium plasma (0D/1D is OK if also has experience in turbulent combustion modeling and simulation): e.g., ZDPlasKin
- Prior experience using OpenMP and/or CUDA and/or OpenACC.

### Application Materials:

- A detailed academic CV (including a list of publications).
- A statement that highlights the research interests and skills (coding skills and experience must be described in detail with evidences).
- One to three publications that you are most proud of.
- Contact details of two/three references.

### How to Apply

Interested prospective candidates should email the above application materials to Prof. Suo Yang ([suo-yang@umn.edu](mailto:suo-yang@umn.edu)).

*The University of Minnesota shall provide equal access to and opportunity in its programs, facilities, and employment without regard to race, color, creed, religion, national origin, gender, age, marital status, familial status, disability, public assistance status, membership or activity in a local commission created for the purpose of dealing with discrimination, veteran status, sexual orientation, gender identity, or gender expression.*