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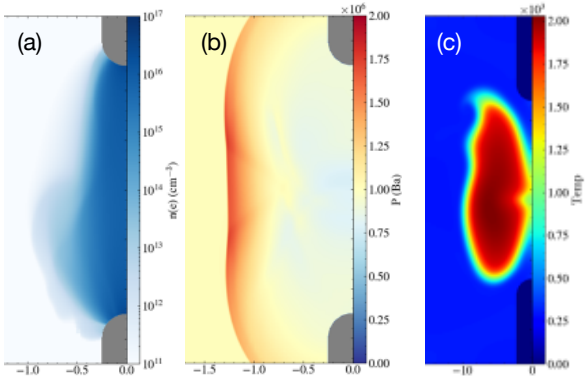
# Postdoctoral Fellow Position

## Modeling and Simulation of Low-Temperature Plasma-Assisted Ignition for Application in Scramjets, Power Generation, and Transportation

The Reactive Flow Modeling Laboratory headed by Prof. Fabrizio Bisetti is engaged in research on the use of low-temperature non-equilibrium plasmas for efficient and reliable ignition of hydrocarbon/air mixtures in scramjets, power generation, and transportation applications.

A postdoctoral fellow position is available immediately. The appointment is yearly and renewable for up to 3 years based on performance and availability of funding. The salary is between $60,000 and $70,000 per year, depending on qualifications and experience. Benefits include health, dental, and vision insurance, and relocation allowance.

Funding for the position is provided through a grant from the Department of Energy (DOE). Collaborations with Sandia National Laboratories (SNL), Argonne National Laboratory (ANL), and the National Renewable Energy Laboratory (NREL) are an integral part of the research.




Plasma-assisted ignition in an ethylene/air mixture: (a) plasma discharge (0-100 ns); (b) acoustic expansion (100 ns – 5 us); (c) kernel ignition and outward flame propagation (5 us to 10 ms).

The postdoc will perform large-scale high-fidelity simulations of plasma discharges and ignition of combustible mixtures in the presence of turbulence and mixture inhomogeneities. Simulations will be conducted using massively parallel plasma and reactive flow solvers based on the AMReX library for block-structured adaptive mesh refinement developed at NREL as part of a DOE's Exascale Computing Project. The postdoc will present at scientific conferences and disseminate research in the form of peer reviewed articles in high-impact journals. The postdoc will help the PI with graduate student supervision and acquire experience with preparing grant proposals.

Strong background and experience in one or more of combustion and reactive flows, plasma physics and modeling, fluid mechanics, applied mathematics, parallel software development, and large-scale simulations on high-performance computing platforms are desirable.

Interested candidates should contact the PI directly at **fbisetti@utexas.edu**, submitting CV, two sample publications or manuscripts, and a brief cover letter with career and research highlights.

Qualified candidates will be invited to participate in a remote seminar and interview. Highly competitive candidates will be invited to Austin for an in-person visit. More information on the research group is available at **https://sites.utexas.edu/flow**

Fabrizio Bisetti
Associate Professor of Aerospace Engineering