



**The Combustion Institute**

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## **Postdoctoral Researcher: Laser Diagnostics in Reacting, Multiphase Systems**

The Turbulence and Combustion Research Laboratory (TCRL) within the Department of Mechanical and Aerospace Engineering at Ohio State University has an immediate opening for a qualified postdoctoral researcher in the area of reacting, multiphase systems. This position is for an experimentalist, where the focus will be the application of advanced laser diagnostics in turbulent sooting flames and high-pressure spray flows. Responsibilities of the candidate will include (i) development and application of laser-induced incandescence (LII), particle imaging velocimetry (PIV), and filtered Rayleigh scattering (FRS) diagnostics in highly turbulent sooting flames to understand the roles of flow kinematics, mixing, and temperature on soot formation and transport. (ii) Application of advanced pulse burst laser technology and high-speed laser diagnostics in high-pressure spray flows to understand ignition dynamics and subsequent lifted flame stabilization. (iii) Mentoring of graduate students, offering expertise and assistance where needed.

### **Essential Requirements**

Applicants should have earned a doctoral degree in mechanical engineering, aerospace engineering, or a related scientific discipline with a focus area on the application of laser diagnostics to fluid mechanics and/or thermal science problems. A successful candidate should have extensive experience with combustion and/or multi-phase systems and it is highly desired that the candidate has previous experience with soot diagnostics (i.e., LII) and/or spray diagnostics. Previous experiments working with high-pressure facilities also is desired, but not required. The candidate should be familiar with basic image processing and have proficiency in software applications such as Matlab, LabView, C/C++, or other similar platforms. The successful candidate is expected to present results at national and international conferences and publish in peer-reviewed journals. In this manner, strong oral and written communication skills are required. It is expected that the position will be for a minimum of two years with the possibility of a third year appointment.

### **How to Apply**

Interested applicants should prepare a package that includes:

- (i) a brief cover letter describing their background and interest in the position,
- (ii) a C.V.,
- (iii) two representative publications, and
- (iv) names and email addresses of three references.

This should be sent via email to:

Jeffrey A. Sutton | Associate Professor  
Department of Mechanical and Aerospace Engineering  
Director, Turbulence and Combustion Research Laboratory  
Ohio State University  
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