



The Combustion Institute

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PostDoctoral Researcher in Laser Diagnostics Combustion

Design of next generation cleaner and more efficient engines and gas turbines requires an improved understanding of the complex interaction between fluid-mechanics and chemistry under high pressure conditions. Development of predictive numerical models that correctly describe the turbulence-chemistry interaction at high pressure requires accurate experimental datasets for validation. Quantitative experimental datasets are scarce because of the complexities associated to the operation of high pressure test facilities, and of the challenges associated to the application of laser diagnostics to this extreme environment. The project aims at the development and application of novel laser diagnostics for high-speed, quantitative measurements of temperature and species in high pressure combustion environment. The successful candidates will have the opportunity to apply the developed diagnostics to the study of turbulence-chemistry interaction in high-Reynolds, high-pressure flames, specifically designed as target case for numerical model validation, The experimental datasets will provide new insight in fundamental high-pressure combustion physics, and will be used to validate numerical models.

The appointees will work in an interdisciplinary team with expertise in combustion, chemistry and fluid mechanics. As part of their postdoctoral tenure, the appointees are expected to assist with the supervision of graduate students, and collaborate with visiting scientists from other institutions. The successful candidates will conduct independent research under the mentorship of Dr. Magnotti, and will be expected to publish in the open literature.

Benefits: Competitive salary, free housing, medical, dental and life insurance, relocation allowance and yearly air travel allowance. No income tax is paid in Saudi Arabia.

Essential Requirements

A successful candidate must have a Ph.D. in engineering, applied physics or other close fields. Candidates should have a proven record of original contributions to the development and applications of laser diagnostics. Preference would be given to candidates with experience in high speed data acquisition and analysis, pulse-burst lasers, or femtosecond diagnostics. A background in fluid-mechanics or combustion is preferred. Strong verbal and written communication skills in English, and the ability to work in an interdisciplinary and international team is required.

How to Apply

Applications will be reviewed until the position is filled. To apply send a CV, a cover letter, and up to 3 peer-reviewed journal publications to Prof. Gaetano Magnotti (gaetano.magnotti@kaust.edu.sa).

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