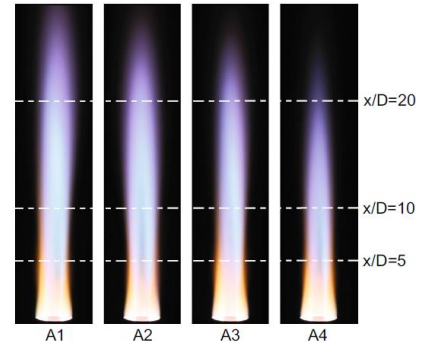


Overview

A unique position is available for a PhD student in the fields of laser diagnostics and modelling. As part of an exciting project funded by the Australian Research Council, this project offers the successful applicant the opportunities of:

- Broadening skill-base.
- Developing detailed knowledge of combustion and fuel sprays.
- Hands-on experimental and theoretical skills, including world-class laser diagnostics, burners, and computational fluid dynamics.
- Work with world-wide leaders, both in Australia and overseas.
- International travel.



Is combustion still relevant?



Although zero-carbon-emitting energy technologies are important, into the foreseeable future, combustion will be required to supply the world's enormous, and growing, energy demands. This is especially true for the transportation sector, where feasible alternatives to liquid fuels are not available to power the aerospace and maritime industries.

What is the project about?

Due to the importance of spray flames in engine design, major advancements have been made in this technology; however, further technological development is restricted due to critical deficiencies in understanding of the combustion processes surrounding the burning of droplets. This project will deliver the most complete set of combined experimental and computational results on dilute spray flames. The results will be of relevance to both the research and industrial communities, with a view to enabling breakthroughs in reliable and predictive design tools for spray flame combustors operating on liquid fuels, including bio-fuels.

What will I do?

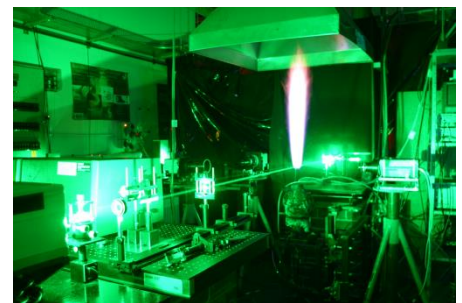
You will take a leading role in both laser-based laboratory experiments and computational modelling of flames. This will require you to develop both practical and theoretical skills in the field of combustion and energy science.

Do I need to have any experience?

As long as you have an inquisitive mind and an ability to learn, then it is not essential for you to have any experience with combustion or lasers. You will develop all the necessary skills throughout your studies. An honours degree in engineering or science will be necessary for admission to the university.

Some more technical details...

In this project you will learn to use laser diagnostic techniques – only available at the University of Adelaide – to characterise and understand the coupling and interdependencies between the liquid and gas phases of fuel droplets and spray flames. The state-of-the-art laser diagnostic facility you will use is equipped with custom designed lasers and cameras systems, recently used to perform the first instantaneous two-dimensional imaging of temperature in spray flames. Your experiments will be among the first simultaneous, two-dimensional measurements of temperature, soot volume and combustion species in turbulent spray flames.



As a PhD student in the School of Mechanical Engineering, you will have access to the Phoenix supercomputer, which placed in the June 2016 TOP500 most-powerful supercomputers list, in the and in the top 20 of the Green500 list for performance/Watt.

How much do I get paid?

Suitable students for this project will be competitive for scholarship funding. Postgraduate scholarships are typically around \$26,300 per annum (tax-free 2016 rate), you will also have an allowance for international travel. To further this, as a PhD student you may be eligible for international travel scholarships to visit research institutions around the world!

More information

Even if you are not quite sure, for an obligation free chat and tour of the facilities, please feel free to contact Paul Medwell: paul.medwell@adelaide.edu.au