

## PROJECT DETAILS

Project Title:

**Impact of Side Dilution Jets on Swirl Stabilised Turbulent Flows.**

Project Summary:

This project uses experiments and simulations to resolve the complex interaction from multiple side dilution jets impacting swirl stabilised bluff body flows operated isothermally (non-reacting). The optically accessible chamber used mimics gas turbine configurations which means there is relevance to industrial combustors used in both propulsion and land-based power generation. Additionally, the use of both experiments (including laser diagnostics) as well as modelling means the project focuses on gaining fundamental insights into the behaviours investigated.

Potential benefits include a better understanding of the way in which side dilution jets affect the velocity field, mixing, or instabilities arising in practical combustors.

Preferred Applicant Skillset:

Prior research experience in relation to turbulent jets or swirl flows is critical. This can be demonstrated either through multiple peer reviewed publications, including one or more as first author. A completed Master's thesis on turbulent jets, accompanied by joint authorship of multiple papers is also possible. Candidates will be required to have the capacity to work independently conducting both experiments and modelling, devise and meet tight project timelines, and contribute as first author on publishing multiple (min 4-5) peer-reviewed journal papers over the duration of the project. The use of High-Performance Computing (HPC) would likely be involved.

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