Post-doctoral position in CFD
URANS and hybrid RANS/LES approaches for cavity flows in the natural convection regime

- Recruitment grade: young researcher (with PhD)
- Location: Pau, France
- Starting date: 1st September 2021
- End: 31 August 2022

Context

The post-doc position is part of the project MONACO_2025 (click here to visit the website). Transient, buoyancy-affected turbulent flows play a major role in many industrial and environmental applications, in particular for the sectors of the two industrial partners, automotive and nuclear industries. Therefore, the MONACO_2025 project focuses on configurations representative of a wide range of systems, in order to develop innovative models that will make possible the use of CFD for such very challenging configurations in the daily practice of engineers, which is not possible nowadays.

The objective of the project is thus to incorporate buoyancy effects in a range of turbulence models, in order to provide engineers with efficient, robust and accurate tools for the prediction of flows in the mixed or natural convection regimes.

Objectives

During two PhD projects included in the MONACO_2025 project, RANS and hybrid RANS/LES models have been developed for natural convection flows.

The objective of this post-doc is to carry out Task 5.1 of the project, which is twofold: evaluating, in the natural convection cavity experimentally studied by another PhD student of the project, the accuracy of

- each model of the panel developed during the project: buoyancy-extended eddy-viscosity models, industrial second-moment closures, both in URANS mode;
- Hybrid RANS/LES models, sensitized to buoyancy effects or not.

The simulations will be carried out with the open-source solver Code_Saturne.

Supervision and contact

The post-doc will be supervised by Remi Manceau (click here), senior CNRS researcher, specialist of turbulence modelling for CFD, working at the Laboratory for Applied Mathematics of the University of Pau.

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