**Imperial College London**

**Departments of Aeronautics**

PhD Studentship

Application deadline: until filled.

Start date: October 2023 (flexible)

**Coarse-grid CFD for plant-scale simulations** (Ref AE0037)

Applications are invited for a Ph.D. studentship in the Departments of Aeronautics.

The Ph.D. project is sponsored by Rolls-Royce submarines and aims at developing robust and accurate coarse-grid Computational Fluid Dynamics (CFD) approaches that can be applied at the scale of an entire nuclear plant, with the aim of providing a level of fidelity close to conventional three-dimensional CFD while having a computational cost closer to that of the one-dimensional systems code models that are currently employed.

More specifically, this Ph.D. research will investigate novel, exact geometry, numerical discretization schemes that address issues of model and discretisation errors associated to coarse-grid CFD simulations. Their development also presents opportunities to realize benefits associated with novel computing architectures, such as further significant runtime improvements beyond those just associated with the use of a coarse grid.

The post-holder will gain experience in research development of novel coarse-grid CFD methods, their verification and validation, and the analysis, interpretation and publication of scientific findings. In addition, the successful candidate will be expected to present their findings at regular progress meetings with Rolls-Royce submarines, to submit publications to refereed journals, and to present their findings at major international conferences.

Applications are invited from candidates who possess (or expect to gain) a first-class honours MEng, MSc, or equivalent degree in Engineering, Maths or Physics with a strong background in fluid mechanics and numerical methods. They should also have a proven aptitude for programming and a genuine passion for research.

Imperial College is consistently ranked as one of top 10 universities in the world and top 5 universities within the UK. In 2023/24 Imperial ranked 6th in the world in the QS and 10th in the world in the THE rankings. It has been ranked as the most innovative university in Europe. The Aeronautical and Mechanical Engineering Departments rank 1st in the Guardian University Guide 2023 (UK).

*Funding is available for UK citizens only. The studentship is for 3.5 years and will provide full coverage of tuition fees and a tax-free stipend of £20,622 per annum.*

If you are interested in applying, I will be happy to address any initial informal enquiries you may have (Joaquim Peiro, [j.peiro@imperial.ac.uk](mailto:j.peiro@imperial.ac.uk)).

For queries regarding the application process, please contact Lisa Kelly at [l.kelly@imperial.ac.uk](mailto:l.kelly@imperial.ac.uk)

*Imperial College is committed to equality and valuing diversity. We are an Athena Silver SWAN Award winner and a Stonewall Diversity Champion.*