

Brahmal Vasudevan Institute for Sustainable Aviation

PHD STUDENTSHIP ON MULTIDISCIPLINARY AIRCRAFT DESIGN

(REF: AE0045)

Deadline: **Until filled**

Applications are invited for a Ph.D. studentships at the [Brahmal Institute](#), a new collaborative research centre at Imperial College to enable blue-sky thinking addressing the adverse environmental impacts of aviation. The successful candidate will join a vibrant [world-leading](#) research community that is building a [sustainable future](#) at the heart of London. This project will focus on the **development of operation and future-aware multidisciplinary aircraft design framework**.

Air transportation activities increase faster than the introduction of new environmental impact mitigation technologies and strategies, which calls for the development of revolutionary technological solutions (such as morphing wing technologies, hydrogen-powered aircraft, etc). To ensure their effectiveness in real applications, considering the design and operational aspects of aircraft simultaneously in designing them is imperative. However, there lacks a fully integrated aircraft design-operation framework, owing to the high level of complexity and computational cost involved.

This project will involve the developments of cutting-edge computational methods (such as surrogate models, data assimilation, optimization, and sensitivity analysis), to advance multidisciplinary design optimization (MDO) frameworks. The goal is to integrate operational variability consideration into an MDO framework, within a practical computational budget, to yield operation-aware solutions. To design long-term sustainable aviation solutions, the framework should be able to account for the anticipated climate change impact on aircraft performance and operations. There is some flexibility in terms of the selection of case study and method development, which will be discussed between the principal investigator and the PhD student when the project commences.

Applications are invited from candidates with (or who are expected to gain) a first-class honours degree or equivalent in a suitable field such as engineering, computer science, physics, or atmospheric science.

Funding

The studentship is for 3.5 years and will provide full coverage of tuition fees, a generous travel budget and an annual tax-free stipend of £20,622 for home, EU and international students.

Information on fee status can be found at <https://www.imperial.ac.uk/study/pg/fees-and-funding/tuitionfees/fee-status/>

To learn more about Imperial College, please go to www.imperial.ac.uk/study/pg. To apply for these fully-funded studentship please go to <https://www.imperial.ac.uk/study/apply/postgraduate-doctoral/application-process/> and indicate in your application the reference code for the project(s) you are most interested. Please address your application to the Department of Aeronautics. For further inquiries, contact us at brahmal-institute@imperial.ac.uk or for specific questions regarding the nature of the research please contact the project lead: **Dr Rhea Liem** (r.liem@imperial.ac.uk)

Imperial College is committed to equality and valuing diversity. We are also an Athena SWAN Silver Award winner, a Stonewall Diversity Champion, a Disability Confident Employer and are working in partnership with GIRES to promote respect for trans people.