Title: CFD Modelling of Distributed Propulsion Systems

Type of award  PhD Research Studentship

Department  Aerospace, Fluids and Aerodynamics Research Group

Scholarship Details  Minimum £15,609 p.a. covering UK tuition fees and a tax-free stipend at the UKRI stipend level

Duration  3.5 years

Eligibility  Home/EU (UK settled status) with permanent UK residency

Start Date  Available now, latest start 29 October 2021

PhD Topic Background/Description
There is currently an exciting PhD opportunity in the Aeroacoustics group at the University of Bristol to work on aerodynamics and aeroacoustics of novel aircraft platforms. The Aeroacoustics group at the University of Bristol is one of the largest and most vibrant teams in the EU, working on a wide range of projects, in close collaboration with major industrial and academic partners across the globe.

This project concerns numerical modelling of the aerodynamic and aeroacoustic performance of new aircraft configurations fitted with novel distributed propulsion systems, i.e. multiple propellers distributed tightly over the wing. The project will involve CFD modelling of the distributed propulsion system using the Lattice Vortex Method (LVM), which will help us better understand the aerodynamic performance of multi-propeller systems and the propeller-propeller and propeller-airframe interaction effects. A thorough parametric study will be performed to assess the aerodynamic performance of such systems at different operating conditions. The noise signature of the system will also be analysed using the Ffowcs-William-Hawking method. Of particular interest here is the effect of blade phase-locking on the radiated tonal noise. The project will be carried out in close collaboration with Embraer.

Candidate Requirements
Applicants must hold/achieve a minimum of a master’s degree (or international equivalent) in a science, mathematics, or engineering discipline. Applicants without a master’s qualification may be considered on an exceptional basis, provided they hold a first-class undergraduate degree. Please note, acceptance will also depend on evidence of readiness to pursue a research degree.

If English is not your first language, you need to meet this profile level:
Profile E
Further information about English language requirements and profile levels.

Basic skills and knowledge required
CFD, aerodynamics, modelling
Scholarship Details
Stipend at the UKRI minimum stipend level will also cover tuition fees at the UK student rate. Funding is subject to eligibility status and confirmation of award.

Funding is open to EU applicants who have no restrictions on how long they can stay in the UK and have been ordinarily resident in the UK for at least 3 years prior to the start of the studentship (with some further constraint regarding residence for education).

For EPSRC funding, students must meet the EPSRC residency requirements.

Informal enquiries
For informal enquiries, please email Prof Mahdi Azarpeyvand, m.azarpeyvand@bristol.ac.uk or Dr Beckett Zhou, beckett.zhou@bristol.ac.uk

For general enquiries, please email came-pgr-admissions@bristol.ac.uk

Application Details
To apply for this studentship, submit a PhD application using our online application system [www.bristol.ac.uk/pg-howtoapply]

Please ensure that in the Funding section you tick “I would like to be considered for a funding award from the Aerospace Engineering Department” and specify the title of the scholarship in the “other” box below with the name of the supervisor.

Apply now