Title: Aerodynamics and aeroacoustics modelling distributed propulsion

Type of award: PhD Research Studentship

Department: Fluids and Aerodynamics Research Group, Aerospace Engineering

Scholarship Details: Scholarship covers full UK/EU PhD tuition fees and a tax-free stipend at the RCUK rate (£15,009 in 2019/20, £15,285 in 2020/21) subject to eligibility and contracts.

Duration: 3.5 years

Eligibility: Home/EU

Start Date: From 1st October 2020

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 FfowcsWilliam-
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.

**Further Particulars**

**Doing research at the University of Bristol**

The quality of research at the University of Bristol places it within the top five Universities in the UK based on the Research Excellence Framework and Times higher Education rankings 2014-15. The PhD candidate will be a part of a friendly and diverse community. The University has a Doctoral College (BDC) which offers approximately 200 courses, interactive workshops and seminars as a part of the University’s Personal and Professional Development Programme for PGR students. The BDC organises University-wide events and provides a hub of information, guidance and resources to help researchers to get the most of their time at Bristol.

**Candidate Requirements**

Applicants must hold/achieve a minimum of a master’s degree (or international equivalent) in a science, mathematics or engineering discipline.

**Basic skills and knowledge required**

Mathematical modelling, CFD, aerodynamics

**Informal enquiries**

Please email Prof Mahdi Azarpeyvand (m.azarpeyvand@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.

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