Title: Investigation of Large Fold Angles of a Semi Aeroelastic Hinged Wing Tip

Type of award: PhD Research Studentship

Department: Aerospace Engineering

Scholarship Details: Scholarship covers full UK/EU (EU applicants who have been resident in the UK for 3 years prior to 1st September 2019) PhD tuition fees and a tax-free stipend at the RCUK rate (£15,009 in 2019/20) plus a company top-up of £5k p.a. EU national’s resident in the EU may also apply but will only qualify for PhD tuition fees plus the company top-up.

Duration: 4 years

Eligibility: Home & EU (fees only)

Start Date: 1 October 2019

PhD Topic Background/Description
The Semi Aeroelastic Hinged wing tip concept has been developed by Airbus with the University of Bristol and is based on idea of allowing a wing-tip, that can be moved on the ground to fit airport gates, to be released for passive movement in-flight to enable gust loads alleviation & improved roll efficiency. It is a means to achieve very high aspect ratio wings with significant aero performance benefits without any increased weight, thus improving the aircraft fuel efficiency and reducing the environmental impact.

The student will develop a series of non-linear computational aeroelastic models using MATLAB and FE based models in order to predict the response characteristics of the folding wing-tip and to perform parameter studies. Wind tunnel tests will be performed, plus potentially flight test experiments (using the AlbatrossONE UAV demonstrator aircraft), to investigate the aeroelastic phenomena associated with very large wing tip folding angles such as passive deployment on the ground or inadvertent over-folding of wing tips in-flight, and to validate the numerical models.

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**
A minimum 2.1 degree in Aerospace Engineering, Mechanical Engineering or a related discipline.

**Basic skills and knowledge required**

**Essential:**
Good mathematical skills. Knowledge of vibrations and aerodynamics. Programming and FE skills (ideally with MATLAB and NASTRAN). Good communication and report writing skills.

**Desirable:**
Knowledge of aerodynamics, aeroelasticity and nonlinear dynamics. Experience of vibration and/or static wind tunnel testing.

**Informal enquiries**
Please email Prof Jonathan Cooper (j.e.cooper@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](http://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.

Closing date for applications: **31 March 2019**

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