

## CALL FOR PAPERS



ROYAL  
AERONAUTICAL  
SOCIETY

2016 • CELEBRATING 150 YEARS

Structures and Materials Group Conference

# 5TH AIRCRAFT STRUCTURAL DESIGN CONFERENCE

Publications partner:

THE  
AERONAUTICAL  
JOURNAL

THE UNIVERSITY OF MANCHESTER / 4 - 6 OCTOBER 2016

The Royal Aeronautical Society's 5th Aircraft Structural Design Conference, undertaken with the support of the Aerospace Research Institute, University of Manchester, will address the challenges facing the designers of the next generation of aircraft. These arise because the new designs will need to meet strict environmental constraints and will be subject to ever increasing pressures for reductions in manufacturing and life-cycle costs and continual improvements in overall performance/efficiency factors. The resulting aircraft will be complex, requiring multi-disciplinary design approaches and solutions in a distributed design environment.

The 5th Aircraft Structural Design Conference will be hosted by the University of Manchester which has a long history in the development of aeronautical sciences starting when the 25 year old Osborne Reynolds was appointed its first 'Professor of Engineering' in 1868. The University houses the Aerospace Research Institute, the National Graphene Institute, the Northwest Composite Centre together with its commercial arm the National Composites Certification and Evaluation Facility, NCCEF. The conference will be held at the Manchester Conference Centre which lies at the heart of this vibrant city.

A call for papers is currently open for this conference and seeks contributions covering current research focused on the design and manufacture of future civil and military air-vehicle structures, both manned and uninhabited. The scope of the conference covers both airframe and engines. This includes consideration of innovative forms and design scenarios together with the challenges resulting from considering the complete aircraft life-cycle, from initial concept to final disposal. The design and analysis of structures constructed from CFRP and novel materials is a major topic area for the conference.

These challenges need complex and innovative design solutions that often require the use of interdisciplinary and dynamically interactive design methods that may be supported by knowledge based engineering tools. In addition, today's design teams are multinational, distributed across continents or the globe, and the computational methods employed must be able to support a distributed work environment. The control of such complexity in the designs and the design process is a major issue that the conference wishes to address.

### INSTRUCTIONS TO AUTHORS

The International Organising Committee invites prospective authors to submit abstracts of original work for presentation at the Conference. Authors are requested to contribute both a half hour presentation at the conference and a written paper for the proceedings. The Organising Committee reserve the right to enforce a no paper, no present / no present, no paper rule.

Abstracts should be written in English and contain between 200 - 500 words, preferably in electronic format or typed double spaced on A4 or 8x12 inch paper.

The deadline for submitting abstracts is **Monday 11 April 2016**. Accepted scripts and presentations, fully cleared for publication and presentation should be submitted by **Friday 9 September 2016**.

All written papers will be included in the Conference Proceedings and made available to delegates through the Society's proceedings website. Accepted papers may also be considered for inclusion in the Royal Aeronautical Society's Aeronautical Journal, subject to the refereeing process.

It is important to note that papers should not have been published previously and they should avoid inappropriate sales or marketing content.

Speakers will be entitled to register using a reduced delegate rate.

To submit an abstract please email us with the following information:

- Corresponding author's name
- Speaker's name (including title)
- Speaker's job title
- Speaker's employer
- Title of presentation/ paper
- Abstract

### KEY DATES AND DEADLINES

- Abstracts submitted by: 11 April 2016
- Authors notified by: 22 April 2016
- Programme Circulation: June 2016
- Presentations / papers submitted: 9 September 2016
- Conference: 4 - 6 October 2016

### CONFERENCE AND EVENTS DEPARTMENT

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Papers and other contributions will be sought to cover the following broad topic areas:

### • Structural Design

Papers addressing design solutions for a range of emerging problems including environmental constraints, requirements for preventative and corrective maintenance, improved safety and crashworthiness and the need for reducing the time to market. Contributions may be submitted that discuss the application of knowledge based engineering methods and tools in supporting the design task.

### • Fibre Reinforced Plastics (FRP) and Advanced/Novel Materials

In the case of FRP and hybrid fibre-metal laminates, papers may address how these and similar materials can be employed to improve structural performance, including morphing and tailoring taking into account cost and manufacture/fabrication process. Contributors may wish to consider how these material systems can be maintained in service through non-destructive testing, structural health monitoring etc. and subsequently re-cycled. Papers discussing the potential for novel nano-materials such as graphene and the associated manufacturing evaluation and certification issues would be welcome.

### • Computational Methods

Papers under this heading can cover the full range of design and analysis methods involving multi-disciplinary or single discipline environments employing a range of discipline models from simple to complex. The design focus may be directed at flexible aircraft including active/adaptive structures and non-linear behaviour. At a more specific level papers can be submitted which address methods for accurate and efficient mass/load estimation and methods taking account of uncertainties and damage tolerance in an optimising regime.

Potential contributors should note that these three major areas are not to be considered as discrete and papers which combine topics in two or more of the above headings will be welcome.

Please send this to Ayesha Nicholls, Conference and Event Organiser at the Royal Aeronautical Society, on [ayesha.nicholls@aerosociety.com](mailto:ayesha.nicholls@aerosociety.com). Please quote reference no. #788.

### ORGANISING COMMITTEE

#### Chairman of Conference Organising Committee

Prof Alan Morris, Royal Aeronautical Society, UK

#### Chairman of the Local Organising Committee

Professor Constantinos Soutis, University of Manchester, UK.

#### International Organising Committee

Prof Horst Baier, Institute of Lightweight Structures, Germany

Prof Chiara Bisagni, Delft University of Technology

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Prof Karen Willcox, MIT, USA

Prof Zheng Zhong, Tongji University, Shanghai, China

### KEY DATES AND DEADLINES

- Abstracts submitted by: 28 March 2016
- Authors notified by: 22 April 2016
- Programme Circulation: June 2016
- Presentations / papers submitted: 9 September 2016
- Conference: 4 - 6 October 2016

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