



General Aviation Conference and Open Meeting

LIGHT AIRCRAFT DESIGN 2018: ON THE LIGHTER SIDE



MONDAY 19 NOVEMBER 2018

10:30 **Registration & Refreshments**

11:00 **CHAIRMAN'S WELCOME**

Speaker: Chris Wright MRaES, Vice Chair, General Aviation Group, Royal Aeronautical Society

SESSION ONE

11:10 **1) WINGSUIT FLYING: EXPERIENCE AND TECHNOLOGY**

Speaker: Oliver Gibbs, Instructor

11:40 **2) THE DESIGN AND DEVELOPMENT OF THE "FLYCYCLE" FLYING TRICYCLE**

The Flycycle project has been carried out to combine elements including a modern flexwing, ultra lightweight powerplant and recumbent cycling into a practical road going aircraft weighing less than 70kg including fuel. The lecture explains why and how it was carried out, the testing done so far and how the vehicle can be developed further.

Speaker: Dr William Brooks, Technical Director, P&M Aviation Ltd

12:10 **3) SKYWALKING: FOOT LAUNCHED FLIGHT**

In the UK there are around 8,500 pilots who fly hang gliders and paragliders, launching from hillsides or fields. Where have they come from? and where are they going?

Speaker: Ian Currer, Technical Officer, British Hang Gliding and Paragliding Association

12:40 **4) WHITAKER AIRCRAFT DESIGNS**

A review of all MW aircraft including historical details and design aspects.

Speaker: Mike Whitaker, Designer, Whitaker Aircraft Designs

13:10 **PANEL DISCUSSION**

13:30 **Networking Lunch**

14:10 **SESSION TWO: DESIGN COMPETITION WINNER ANNOUNCEMENTS**

14:20 **5) DESIGN COMPETITION - WINNING SUBMISSION - A**

14:40 **6) DESIGN COMPETITION - WINNING SUBMISSION - B**

14:50 **7) DESIGN COMPETITION - WINNING SUBMISSION - C**



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SESSION THREE

15:00

8) ROLE OF SIMULATION SOFTWARE IN LIGHT AIRCRAFT DESIGN. X-PLANE AND BEYOND...

A very brief overview of the typical Aircraft design process will be presented essentially to establish a case for using flight simulation as a tool in the aircraft design process. An overview of the leading simulation software (X-Plane) will be presented. A typical preliminary design scenario will be highlighted using a worked example and how various software components are used to capture the Preliminary Design. Once the design is captured, the talk will focus on how the simulation is used to perform the design iterations, extract the data for establishing the dynamic stability of the aircraft, and use the simulation for performing performance evaluation. Use of Hardware in the Loop and Software in the Loop simulations in the X-Plane environment will be explored. Finally One Aspect of performance, i.e. the Take-off Distance will be compared with the Pilot Operating Handbook, for a Cessna 172.

Speaker: Rashid Ali, Coventry University, David Stanbridge MRAeS, Managing Director, Swift Technology Group

15:30

9) VOLTS & VTOLS

Developing a unique VTOL hybrid electric biz jet.

Speaker: Norman Wijker, Head of Research, Samad Aerospace

16:10

Networking Break

16:30

10) ELECTRIC VS IC: TECHNICAL CHALLENGES; AIRCRAFT CHOICE

Electric aircraft may be the future, they'll certainly be part of the future - but we're not there yet. This presentation will explain the technical challenges slowing creation of viable all-electric aircraft, how modification and certification is likely to work, and how to select the best aircraft for electrical conversion. A roadmap will be proposed from where we are now, to wide use of electric (and possibly hybrid) aeroplanes.

Speaker: Prof Guy Gratton FRAeS, Cranfield University, Visiting Professor

17:00

11) HURRICANE 315 SSSR MICROLIGHT DESIGN & DEVELOPMENT

One man's quest to designed, build and fly an iconic shaped low wing monoplane within the SSSR rules.

Speaker: Martyn Ingleton MRAeS, Chief Mechanical Engineer, BAE Systems

17:30

PANEL DISCUSSION

17:50

CLOSING REMARKS

Speaker: Chris Wright MRAeS, Vice Chair, General Aviation Group, Royal Aeronautical Society

18:00

CONFERENCE ENDS