3RD AIRCRAFT STRUCTURAL DESIGN CONFERENCE

9 - 11 OCTOBER 2012 / DELFT UNIVERSITY, THE NETHERLANDS

BOOK YOUR PLACE AT WWW.AEROSOCIETY.COM/EVENTS
PROGRAMME / DAY ONE - 9 OCTOBER 2012

08.00  Registration and Coffee
08.30  Conference Welcome and Announcements
08.45  Keynote
        Zafer Gurdal, Aerospace Structures Chair, Faculty of Aerospace Engineering, Delft University of Technology

09.00  SESSION 1: COMPOSITES
09.00  1A) Damage Analysis of Bonded Repairs in Composites using Digital Image Correlation Methods
        Dr Miguel Caminero, Lecturer, University of Castilla-La Mancha
09.05  1B) Post-Buckling of Variable Angle Tow Composites using Variational Approach
        Dr Zhazhong Wu, Research Assistant, ACCIS Centre

09.55  Networking Break
10.00  SESSION 2: IMPACT / DYNAMICS
10.00  2A) Aircraft Seat Compliance (CS25.562) Against Seat Track Predistortion Load Case: Use of Numerical Simulation Tools for Concept Development
        Omkar Gulavani, PhD Researcher, Cranfield University
10.10  2B) Simulation of Composite Crush Structures
        Dr Xian Prior, Director SIMULIA North-Nordics CSE, Dassault Systemes

10.50  Networking Break
11.00  SESSION 3: COMPOSITES
11.00  3A) The Impact of Structural Component Complexity and Scale on the Cost of Automated Prepreg Ply Layup
        Matthew Mullan, PhD Student, Queens University
11.10  3B) Unitised Damage-Tolerant Hybrid GLARE-CFRP Composite Structures for Unmanned Air Vehicles
        David Kordonowy, Aerostructures Research Group Manager, Aurora Flight Sciences
11.20  3C) CFRP Wing Skin Design Under Consideration of Impact Damage and Aero Elastic Stiffness Requirements
        Ir Cyril Wentzel, Researcher, Delft University of Technology

12.00  Networking Lunch
12.30  SESSION 4: TOPOLOGY / SHAPE
12.30  4A) Effect of Wing-Box Structure on the Optimum Wing Outer Shape
        Ali Elham, PhD Researcher, Delft University of Technology
13.45  4B) Using Topology Optimisation in Conceptual Wing Design
        Luis Félix, Academia da Força Aérea Portuguesa
13.55  4C) The Use of Topology Optimisation in the Conceptual Design of a Next Generation Lattice Composite Fuselage Structure
        Steffen Niemann, Scientist, DLR / German Aerospace Centre
14.05  4D) Challenges in Shape Optimisation of Curved Surfaces with Openings
        Dan Wang, PhD Student, Northwestern Polytechnical University

14.45  Break and travel to Koiter and Wall of Fame
16.00  SESSION 5: TOPOLOGY / SHAPE
16.00  5A) A Koiter-Newton Approach for Nonlinear Structural Analysis
        Ke Liang, PhD Researcher, Delft University of Technology
16.25  5B) Cross-Sectional Modelling of Thin-Walled Composite Beams with Initial Twist and Taper
        Etana Ferede, PhD Student, Delft University of Technology
16.50  5C) A Component-Wise Approach for the Analysis of Metallic and Composite Aircraft Structures
        Prof Erasmo Carrera, Full Professor, Politecnico di Torino

17.15  5D) Challenges in Shape Optimisation of Curved Surfaces with Openings
        Dan Wang, PhD Student, Northwestern Polytechnical University

18.00  RECEPTION AT AEROSPACE ENGINEERING FACILITY
PROGRAMME / DAY TWO - 10 OCTOBER 2012

08.00  Registration and Coffee

08.45  Keynote: Multifidelity Modeling for Aircraft Design and Optimisation
        Prof Karen Willcox, Professor of Aeronautics and Astronautics, Massachusetts Institute of Technology

09.30  SESSION 5: MDO
        5A) A Bi-Level High Fidelity Aero-Structural Integrated Design Methodology
            Christophe Blondeau, Research Engineer, ONERA
        5B) A Robust Multidisciplinary Approach to Aerostructural Design
            Dr Andrew March, Research Assistant, Massachusetts Institute of Technology

09.55  5C) Multi-Objective Optimisation Strategies for Aircraft Multi-Disciplinary Design
        Stefania Gemma, PhD Student, University of Rome "La Sapienza"

10.20  Networking Break

10.50  5D) Multi-Modeling Approach in Pre-Designing of Fuselage / Wing Section Consisted of Stiffened Composite Panels
        Dr Victor Fomin, Leading Scientific Resescher, TsAGI

11.15  5E) Design of a Composite Forward Swept Wing using Advanced Aeroelastic Tailoring Optimisation Methods
        Naud Werter, PhD Student, Delft University of Technology

11.40  5F) Multidisciplinary Design and Optimisation of Aircraft Box Structures
        Reinier van Dijk, PhD Candidate, Delft University of Technology

12.05  Networking Lunch

12.30  SESSION 6: DESIGN PHILOSOPHY
        6A) An Improved Stress-Strain Curve Model for Advanced Materials
            Dr Frédéric Bron, R&D Engineer, Aerospace Products, Constellium CRV
        6B) Efficient Finite Element Simulation of Aircraft Fasteners and Joints
            Dr Alan Prior, Director SIMULIA North-Nordics CSE, Dassault Systems

12.55  6C) Damage Tolerance Design
        Prof Luis Reis, Associate Professor, Instituto Superior Técnico

13.20  6D) Evaluation of Structural Loads
        Pedro Albuquerque, TAP Portugal Group

13.55  6E) FAA Certification of Pressurised Aircraft Crack Initiation & Propagation Analysis Supported by Test
        Dr Frank Abdi, Chief Technical Officer, AlphaStar Corporation

14.20  6F) Adaptive Camber-Morphing Wing with Optimised Composite Laminate Lay-Up
        Ashley Dale, Postgraduate Research Student, University of Liverpool

14.45  Networking Lunch

15.10  SESSION 7: OPTIMISATION
        7A) Structural Optimisation of Aircraft Concepts through a Hyper-Heuristic Approach
            Jonathan Allen, Research Postgraduate, Durham University
        7B) The AIRBUS Structural Rapid Sizing Tool based on LMS Samtech CÆSAM Framework
            Dr Malherbe Ghislaine, Business Developer Manager, LMS SAMTECH
        7C) Simultaneous Design of Structural Layout and Discrete Fibre Orientation of Composite Aircraft Structures using a Bi-Value Coding Parameterization
            Prof Pierre Duysinx, Professor, University of Liege
        7D) Efficient Optimisation of Large Aircraft Fuselage Structures
            Jos Vankan, Senior Scientist, National Aerospace Laboratory – NLR

15.40  Networking Break

16.05  7E) Enhance Derivative Design Considering Global Sensitivity of Design Parameters
        Dr Kamran Behdinan, Professor, University of Toronto
        7F) Parameter Free Optimisation for the Design of Large and Lightweight Composite Structures
            Mr Michael Fischer, Research Associate and Chair of Structural Analysis, Technische Universität München
        7G) Optimised Design of Stiffened Panels Using Variable Angle Tows
            Dr Wenli Liu, Research Officer, University of Bath

16.30  7H) Design, Analysis and Optimisation of Thin Walled Semi-Monocoque Wing Structures using Different Structural Idealisations in the Preliminary Design Phase
        Mr Odeh Dababneh, Middle East Technical University

16.55  7J) Detail Design of the Tail Unit of a Newly Designed Agricultural Aircraft
        Ahmed Gubaratalla, Teaching Assistant, Sudan University of Science and Technology

17.20  Networking Break

17.45  SESSION 8: MORPHING
        8A) Span Morphing: Design, Modelling, and Optimisation
            Rajic Ajaj, Research Assistant, Swansea University
        8B) Aeroelastic Characterisation of Corrugated Skins for Wing Morphing
            Dr narcis Ursache, School of Engineering, Brunel University
        8C) Combining Active and Passive Load Alleviation Techniques in Transport Aircraft Structural Design
            Felix Stroscher, Research Assistant, Technische Universität München
        8D) Stiffness and Layout Tailoring of a Morphing High-lift System with Aeroelastic Loads
            Dr Glenn Thuwiss, PhD Researcher, Delft University of Technology

18.15  Networking Break

18.45  SESSION 9: PANEL MODELLING
        9A) Strength-Stability Optimisation of Hybrid-Stiffness Laminated Plates with Cutouts Subjected to Multiple Loads
            Tanut Ungwattanapanit, Research Associate, Institute of Lightweight Structures, Technische Universität München
        9B) Parametric Modelling of Fuselage Panels for Structural Analysis and Cost Estimation
            Haoiqiang Wang, PhD Candidate, Delft University of Technology

19.15  THE CONFERENCE AFTER DINNER SPEAKER WILL BE MARC. L.J.DIERIKX.
Registration and secure payment can be made on-line at www.aerosociety.com/events. Alternatively, complete one registration form per person (photocopies may be used) and return with payment to: Conference & Events Department, Royal Aeronautical Society, No.4 Hamilton Place, London, W1J 7BQ, UK

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REGISTRATION FEES: (include refreshments, lunch, conference dinner, technical tour & proceedings)

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Conference Dinner (No Charge) - (Additional guest tickets available from RAeS C&E Department)

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