

Applied Aerodynamics Conference on Modelling & Simulation in the Aerodynamic Design Process 2012

Current Practice (Future Requirements

**Bristol, United Kingdom
17-19 July 2012**

ISBN: 978-1-62993-114-2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2012) by the Royal Aeronautical Society
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact the Royal Aeronautical Society
at the address below.

Royal Aeronautical Society
No. 4 Hamilton Place
London
W1J 7BQ
United Kingdom

Phone: +44 (0) 20 7670 4300
Fax: +44 (0) 20 7670 4309

www.raes.org.uk

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Combined Wind Tunnel Tests and Flow Simulations for Light Aircraft Performance Prediction	1
<i>Sylvain Mouton, Eric Rantet, Guillaume Gouverneur, Christophe Verbeke</i>	
Experimental Aerodynamic Analysis of a Slow Running Vertical Axis Wind Turbine	10
<i>Leonardo Manfredi, Marcello Righi, Michael Ammann, Marco Blunski</i>	
EnGAM – Integrating CFD into the Concept Design Process	17
<i>Nick Leppard, Nigel Taylor</i>	
Interactive Aircraft Design for Undergraduate Teaching	28
<i>Omran Al-Shamma, Rashid Ali</i>	
Initial Evaluation of a CAD Embedded CFD Method for Predicting 2D and 3D External Aerodynamics	37
<i>M. E. Milne</i>	
FloEFD Simulation of Micro-Turbine Engine	51
<i>T.V. Trebunskikh, A.V. Ivanov, G.E. Dumnov</i>	
The Stability and Control Dataset for Eurofighter Typhoon	64
<i>Simon Peter Eccleston</i>	
Modelling and Analysis of a High Lift System for a Blended Wing Body Aircraft	89
<i>Daniel Paulus, Nicolas Frank, Mirko Hornung</i>	
Aerodynamic Performance Analysis of a Non Planar C-Wing Using Experimental and Numerical Tools	110
<i>Mano Prakash, Lakshmi Narayanan, Manoj Kumar</i>	
Scale Effects on a Single-Element Inverted Wing in Ground Effect	113
<i>J. Correia, M.V. Fennis, K. Knowles</i>	
The Application of Flow Control To A Highly Convoluted Air Intake Duct for a Combat UAV	125
<i>Ian Whitmore, Keith Weatherill, Kenneth Stevens, Jason Green, Jean-Jacques Vallee, Michel Bourasseau, Eric Garnier</i>	
Passive Control of Transonic Cavity Aero-Acoustics	149
<i>David A. Roberts, David G. MacManus, Philip Rubini, Qin Qin</i>	
Experimental and Numerical Investigation of Flowfield of a Generic Scramjet Intake	173
<i>E. Erdem, A.C. Idris, K. Kontis</i>	
Investigation of the Flow Asymmetry around Axi-symmetric Spiked Blunt Bodies in Hypersonic Speeds	177
<i>Mahmoud Y.M. Ahmed, Ning Qin</i>	
Flight Envelope Balanced Aerofoil Design via Meta-Model Assisted Adaptive Design Space	187
<i>Lee Cameron, Juliana Early, Richard McRoberts, Mark Price</i>	
Investigation of CST Geometric Parameterisation Method for an Entire Transport Aircraft	208
<i>Feng Zhu, Ning Qin</i>	
Experimental Aerodynamic Analysis of a Slow Running Vertical Axis Wind Turbine	245
<i>Leonardo Manfredi, Marcello Righi, Michael Ammann, Marco Blunski</i>	
Flexible Wing Twist Optimisation using Rapid Computational Methods	252
<i>Christian Agostinelli, Christian B. Allen, Abdul Rampurawala</i>	
Propeller Effects on MAV Aerodynamics	268
<i>Z.J. Chen, N. Qin</i>	
Hardware Simulation of Power and Propulsion System of a Solar Powered Aircraft	286
<i>Tarek Nada, Prashant Shaholia, Muhammad Ishfaq, Ali Sajjad, Sumit Jashnani</i>	
Qualification of the ARA TWT for laminar flow testing	393
<i>Naomi Allen, Simon Lawson, Moira Maina, James Alderman</i>	
The Effects of Scaling on Flow Inside a Cavity at High Subsonic Mach Numbers	407
<i>V. Thangamani, K. Knowles, A.J. Saddington</i>	
Aeroacoustic Modelling of a 3-D Transonic Cavity Flow Using a High-Order Solver	423
<i>A.J. Saddington, K. Knowles, B. Khanal</i>	
The Aero-Acoustic Environment Within the Weapons Bay of a GenericUCAV	437
<i>Ross A. Chaplin, Trevor Birch</i>	
Of Drag Crises and Burst Altitudes – The Aerodynamics of Stratospheric Ballooning in Theory and Practice	479
<i>Andras Sobester</i>	
Author Index	