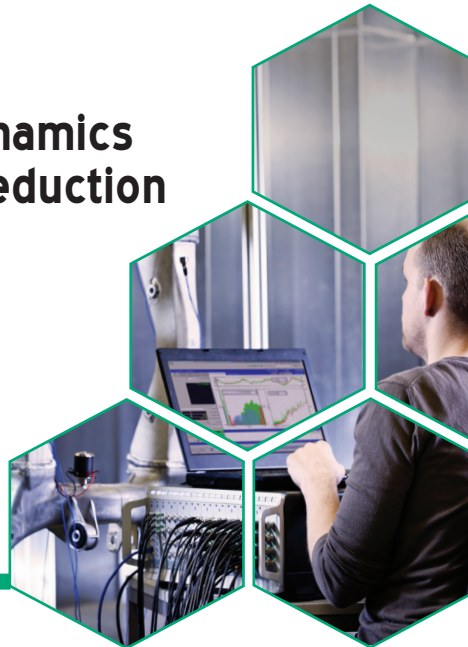


**The Engineering Integrity Society**

## **Workshop on Structural Dynamics in a World where Weight Reduction Matters**

**AMRC, Sheffield  
Tuesday 7 February 2017**



During the last decade, like other areas within Computer Aided Engineering, Structural Analysis has been transformed with the rapidly advancing growth in computing power and it is now common to accurately calculate the modal parameters of a prototype design long before any physical parts are available. This has supported the current drive for designing light-weight structures to improve CO<sub>2</sub> emissions without a significant reduction of structural integrity or reliability. However, the core techniques in modal testing are largely unchanged and many engineers can benefit from regularly reviewing this fundamental knowledge.



This seminar aims to refresh basic techniques in the morning session followed by formal presentations in the afternoon session. The morning session will take the form of three classroom-style tutorials covering the fundamentals of modal testing and analysis, through which three groups of delegates will rotate. The afternoon session will be a series of 30 minute presentations of research work, product test and development, and case studies related to light-weight structures. This provides an opportunity for those involved in the field of structural test, analysis and modelling (both CAE and physical) to present their research / applications and contribute practical advice. It offers a unique occasion to network with participants drawn from industry, modal test equipment suppliers and academia, all working to improve the modal performance of products from simple components to fully built structures.

#### Programme

8.45am Registration, Tea and Coffee

9.00am Introduction - John Wilkinson (SVPP Chairman, EIS)

Workshops (3 rotating groups) covering:-

1. Test preparation and FRF data acquisition - Mueller BBM-VAS

2. Modal parameter estimation, geometry & mode shape creation & animation, error checking - Bruel & Kjaer

3. Test model validation, CAE Pre-test & Correlation - Andrew McQueen, Siemens STS

1.00pm Lunch and Exhibition

2pm **Multidisciplinary CAE optimisation methodology applied to lightweight automotive exhaust systems** – Prannay Patni, Dr Ahmed Elsyed & Katerina Stamou, Coventry University

2.30pm **Correlating structural FEA models of lightweight structures, the observer effect: what is it and what can be done about it** - Martin Cockrill, ASDEC, University of Leicester

3pm Tea, Coffee and Exhibition

3.30pm **Effect of lightweight rear drive unit on ride vibration of a vehicle** - Jiewei Lin Human Factors Research Unit, ISVR, University of Southampton

4pm **Advances in Structural Analysis for Light weight Structures using NVH Principles** - Siemens STS

4.30pm **Modally optimising a helicopter component** - Emiel Barten, Mueller BBM-VAS

5pm Q&A and Closing Comments

#### Booking Form

	EIS Member	Non EIS Member
Delegate	£100+VAT	£140+VAT
Student/Apprentice	£25+VAT	
	UK	Rest of the World
Personal Membership of the EIS	£25 per year	£30 per year
I enclose a cheque for £_____ made payable to the Engineering Integrity Society. Payment can also be made by BACS.		
Name:		
Company:		
Address:		
Telephone:		
Email:		
Any Special Dietary Requirements		

Please return completed forms to the following address: Engineering Integrity Society, 17 Harrier Close, Cottesmore, Rutland, LE15 7BT, UK,  
Telephone: +44(0)1572 811315 Email: info@e-i-s.org.uk

Please tick this box if you do not wish to hear about future events

The **Engineering Integrity Society** is an independent not-for-profit organisation which aims to inspire all engineers, both experienced and newly qualified, across a broad spectrum of technologies. The Society is committed to promoting events and publications, providing a forum for engineers to discuss present industrial needs, new technologies and to stimulate both company and personal development.

The annual subscription rates are £25 for UK residents and £30 for non-UK residents. Upon joining the Society you will also have the additional advantages of preferential attendance rates at EIS events, together with selected events held by some of the associated organisations. In addition you will have access to CDs containing archived copies of EIS presentations.

The **Engineering Integrity Society** is pleased to acknowledge the support of the following organisations:

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