

One day seminar on

Structural Integrity

19th May 2004, 9:00 - 16:00

University of Sheffield

Lecture Theatre 15

Sir Frederick Mappin Building

Mappin Street

Co-sponsored by:

Institute *of* Physics

stress and vibration group

Directions and maps can be downloaded from:

<http://www.shef.ac.uk/visitors/>

Background

Structural failures are hitting the headlines with alarming regularity; the newspapers are seemingly full of suggestions of how these events could be avoided. If the remedy is so simple why do these events continue to happen? In this seminar the invited speakers will provide some answers to this question. Recent incidents will be addressed and audience participation will be encouraged in the discussion sessions.

The theme of the meeting is 'structural integrity' and is an issue that is common to virtually all engineering sectors. If the structural integrity of an engineering system can be derived at a certain point in its life cycle, it is possible to predict its remaining life. This is particularly important in industries where structural failure represents loss of life. In vehicles increased payload and passengers are often played off against a reduction in structural mass and hence strength and stiffness. Composite materials have gone some way to redress this but have also brought with them a new set of failure behaviour. The seminar examines structural integrity in a cross-sector forum, and offers some suggested new approaches covering monitoring, modelling and laboratory based analysis.

The seminar will be of great interest for experienced engineers wishing to update on current issues, postgraduate students studying all areas of structural mechanics and academics with interests in applied and structural mechanics.

Seminar Chairmen: Dr Janice Barton, School of Engineering Sciences, University of Southampton, Dr Rachel Tomlinson, Department of Mechanical Engineering, University of Sheffield.

Seminar Programme:

- 09:00 **Registration and welcome**
- 09:15 **Session 1:** Structural Integrity: Can More Structural Information Help?
Professor Christian Boller, University of Sheffield
- 10:00 **Session 2:** Listening and How It Keeps Things Flying
Mr Phil Cole Physical Acoustics Ltd
- 10:45 **Refreshments**
- 11:00 **Session 3:** Three Case Studies of the Use of Carbon Fibre Composite for Strengthening Metallic Structures on the London Underground
Dr Stuart Moy, University of Southampton, School of Civil and Environmental Engineering
- 11:45 **Session 4:** Delamination and Damage Tolerance of Aircraft Composite Structures
Dr Xiang Zhang, Cranfield University, School of Engineering
- 12:30 **Session 5:** Structural Integrity Monitoring for the Offshore Industry
Professor Bill Dover, UCL NDE Centre and TSC Inspection Systems Ltd
- 13:15 **Lunch**
- 14:00 **Session 6:** Failures of Pressure Systems - HSL Experience
Dr Bill Geary, Health and Safety Laboratory
- 14:45 **Session 7:** Recent Structural Integrity Failures in Railway Systems
Dr Stuart Hillmansen, Imperial College, Department of Mechanical Engineering
- 15:30 Tour of the Structural Integrity Testing Facilities
- 16:15 **Refreshments and close**

REGISTRATION FORM

Seminar Fees:
Students: £30
Members: £100
Non Members: £115

Name			
Organisation			
Address			
Tel		Email	

Please send completed registration form to:

Sally Cryer
British Society for Strain Measurement
38 Park Road North
Bedford MK41 7RH
Tel: 0845 1668382 Email: sallycryer@bssm.org

Please visit our website: <http://www.bssm.org>

	Member	Non-member	Student	Sub total
Fees (excl. VAT)	£100 <input type="checkbox"/>	£115 <input type="checkbox"/>	£30 <input type="checkbox"/>	
			VAT (17.5%)	
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