

One day seminar on

***Structural Integrity***

19<sup>th</sup> 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**

**Seminar Fees:**

**Students: £30**  
**Members: £100**  
**Non Members: £115**

**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](mailto:sallycryer@bssm.org)**

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

## REGISTRATION FORM

Name			
Organisation			
Address			
Tel		Email	

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

### WAYS TO PAY:

- Cheque made payable to 'British Society for Strain Measurement'
- We can invoice you. Please attach a purchase order and insert the order no. here\_\_\_\_\_
- By credit/debit card: Cardholder's name\_\_\_\_\_

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