

Reproduced Sound 2010

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# Performing Arts Venues: Balancing the Design

17 -19 November 2010 Wales Millennium Centre, Cardiff



# Reproduced Sound 2010

## WEDNESDAY 17 NOVEMBER

### 18:00 Welcome to Reproduced Sound

At RS2010 we will again be offering an opportunity for delegates new and old to meet and mix on the evening before the conference. A cash bar will be set aside for delegates and a workshop space where new delegates in particular can meet each other and have the opportunity to quiz some of the more experienced delegates on the fundamentals and the challenges of topics associated with Reproduced Sound conferences. During the evening, the workshop will include contributions from John Taylor, Helen Goddard, Paul Malpas and others, including a welcome and Q & A, audio demonstrations of basic acoustic parameters and John Taylor's tutorial on acoustics fundamentals for audio professionals. This workshop is open to all delegates, presenters and exhibitors.

## THURSDAY 18 NOVEMBER

### 08:00 Registration and coffee

### 09:00 Welcome, EAG Chairman: Paul Malpas

### 09:10 Sonic wonders of the world

*Trevor Cox, University of Salford*

### Transducers Chairman: Paul Malpas

### 10:00 Very high power transducer requirements and design

*Bill Gelow, Electro Voice Engineering, USA*

### 10:30 Coffee

### Physical Acoustics Chairman: Bob Walker

### 11:00 Comparison of measured and predicted sound absorption properties of polyester fibre insulation using an unusual plane wave tube

*Glenn Leembruggen, Acoustic Directions, Australia*

### 11:30 Approaches to single microphone reverberation measurement

*Jamie Angus, University of Salford*

### 12:00 The subjective perception of room mode control methods

*Lucy Elmer, Bruno Fazenda, M Wankling, J Hargreaves, University of Salford*

### 12:30 The WMC – an introduction from the Architect

*Jonathan Adams, Architect, Wales Millennium Centre*

### 12:45 Lunch

### 14:30 Peter Barnett Memorial Lecture 2010

### Strength of sound G, and its importance in evaluating and planning the acoustics of halls for music

*Leo Beranek*

### Room Acoustics Chairman: Simon Jackson

### 15:30 BBC Broadcasting House glass studio design

*Andy Munro, Munro Acoustics*

### 16:00 Tea

### 16:30 Design of the Nokia Concert Hall Tallinn with respect to variable acoustics

*Mark Murphy, John Pellowe, Vanguardia Consulting*

### 17:00 Variable reverberation characteristics in multi-purpose auditoria – theoretical ideals and practical realities

*Paul Scarbrough, Christopher Blair, Akustiks, USA*

### 17:30 Ambisonic replication of auditoria for solo musicians within a digital audio workstation environment

*Barry Watson, University of the West of Scotland*

### 18:00 Hoddinott Hall

*Ian Knowles, Arup Acoustics*

The Hoddinott Hall is the new home and broadcast theatre of the BBC National Orchestra of Wales. Immediately following this there will be a tour for delegates of the hall and control room, led by Ian and by Dave Howard and Laura Metcalf. This tour will last approximately 45 minutes and will have access to both the hall and the control room, with ample time to quiz Ian et al on aspects of the design and use of the spaces.

### 19:15 Drinks Reception

### 19:30 Conference Dinner

### 21:00 Shelley Katz Performance, Weston Studio

*Shelley Katz is both a Reproduced Sound regular and an internationally renowned concert pianist and conductor. As anyone who was at RS21 would probably agree, a performance by Shelley is captivating enough, but more than that Shelley will be accompanied by an electronic orchestra, conducted in real time and brought to life through a fascinating combination of loudspeaker technologies that has been developed by Shelley in pursuit of the perfect electroacoustic performance that is so elusive in classical music of this calibre. Following the performance a bar will be open for delegates to reflect on the first day of the conference.*

**FRIDAY 19 NOVEMBER**

	<b>Loudspeaker Arrays</b> Chairman: Mark Bailey
09:00	Simulation and application of beam-shaped subwoofer arrays <i>Evert Start, Duran Audio</i>
09:30	Chameleon subwoofer arrays in live sound <i>Adam Hill, Malcolm Hawksford, University of Essex</i>
10:00	Razzle dazzle 'em: intelligent line arrays <i>Helen Goddard, Tony Stacey, AMS Acoustics</i>
10:30	Coffee
	<b>Real Venues</b> Chairman: Sam Wise
11:00	Invited Lecture, Sound makes vision <i>Jonathan Adams, Capita Architecture</i>
12:00	The role of a sound designer in theatre <i>Gareth Fry, Consultant</i>
12:30	Sports venues – BS7827 <i>Stephen Jones, Consultant</i>
13:00	Lunch
	<b>Intelligibility</b> Chairman: Helen Goddard
14:30	An efficient model of speech perception in noise and reverberation <i>John Culling, Sam Jeffs, Cardiff University, Mathieu Lavandier, University of Lyon</i>
15:00	Cinema equalisation and intelligibility <i>Philip Newell, Keith Holland, R Karlsson, S Castro, E Valdigem, B Neskov, Reflexion Arts</i>
15:30	EAG AGM
16:00	Tea
	<b>Measuring &amp; Modelling</b> Chairman: Glenn Leembruggen
16:30	Bringing theatre sound to the desktop <i>Michael Smyth, Smyth Research</i>
17:00	FDTD/K-DWM Simulation of 3D room acoustics on general purpose graphics hardware using computer unified device architecture (CUDA) <i>Jonathan Sheaffer, Bruno Fazenda, University of Salford</i>
17:30	Tuning of acoustic drums <i>Phillip Richardson, Rob Toulson, Anglia Ruskin University</i>
18:00	A simple model of loudspeaker cabinet edge diffraction <i>Keith Holland, University of Southampton</i>

19:00 Drinks Reception

19:30 Dinner

21:00 **The Illustrious Company**

*In 2001, Martyn Ware (Heaven 17) and Vince Clarke (Yazoo, Erasure) formed the Illustrious Company, to create new forms of spatialised sound composition using their unique three dimensional 3D AudioScape surround-sound system. In October 2009, the Illustrious Company collaborated with Goldsmiths College in London and Duran Audio in Cardiff on a Large Scale Immersive Audio Experiment. After dinner on the Friday evening, to close the conference, Martyn Ware and Chris Full of Duran Audio will show some of the pieces resulting from that experiment, played through an array of loudspeakers in the Weston Studio. This promises to be a fascinating insight into how aural environments and electroacoustics can become a very real part of our sense of space and a positive factor in good architecture and design.*  
[http://www.illustriouscompany.co.uk/01\\_09.htm](http://www.illustriouscompany.co.uk/01_09.htm)

**Exhibition Space**

Throughout the conference, and up to the final tea-break on the Friday, a selection of manufacturers and institutions will have display stands in the refreshment area of Rehearsal Room 3. For the first time at Reproduced Sound, exhibitors will also be permitted audio demonstrations at scheduled time slots and during coffee breaks.

**Tours of the Millennium Centre**

The WMC is the National Centre for the Arts in Wales. It opened in November 2004 and houses the 1,897-seat Donald Gordon Theatre and the 250-seat Weston Studio, as well as the BBC Hoddinnott Hall. The WMC is home to Welsh National Opera, the National Dance Company of Wales, the BBC National Orchestra of Wales, Tŷ Cerdd, Academi, Hijinx Theatre, Touch Trust and Urdd Gobaith Cymru. The Principal Architect for the project was Jonathan Adams of Capita Architecture, with acoustics and all engineering by Arup. As soon as it opened, the centre began to enjoy both critical and popular acclaim, for its attraction as a venue and for the quality of performances in the halls. During the Reproduced Sound 2010 programme, Jonathan will speak on what it takes to bring the various specialisms of acoustics, theatre, sound, lighting, etc. into the architecture of a venue of this size. He will also conduct guided tours of the Centre to talk further about its architecture and function. Numbers on each tour will be limited, so please indicate your preference on the registration form.

# REGISTRATION FORM

## REPRODUCED SOUND 2010 – 17-19 NOVEMBER 2010

Name:	<input type="text"/>		
Business:	<input type="text"/>		
Address:	<input type="text"/>		
	<input type="text"/>		
Postcode:	<input type="text"/>	E-mail:	<input type="text"/>
Telephone:	<input type="text"/>	Fax:	<input type="text"/>

Please register me for the conference:

All prices inclusive of VAT

### Delegate Fees: (covers the conference, CD Proceedings, refreshments, lunch and dinner on both days)

- |  |         |
|--|---------|
| <input type="checkbox"/> Fee for authors (giving presentation)   | £200.00 |
| <input type="checkbox"/> Fee for members, IOA, ISCE, AES, ABTT, APRS, other authors & overseas delegates                   | £400.00 |
| <input type="checkbox"/> Fee for Non Members   | £450.00 |
| <input type="checkbox"/> Fee for Students (I enclose written confirmation of my student status from my Head of Department) | £60.00  |
| <input type="checkbox"/> Please tick if this is the first RS conference you have attended                                  |         |

### Day Rate: (please indicate which day you will attend. Covers CD proceedings, refreshments and lunch)

- |   |                                   |                                 |         |
|---|-----------------------------------|---------------------------------|---------|
| Members:  | <input type="checkbox"/> Thursday | <input type="checkbox"/> Friday | £220.00 |
| Non-members:  | <input type="checkbox"/> Thursday | <input type="checkbox"/> Friday | £250.00 |
| Students  | <input type="checkbox"/> Thursday | <input type="checkbox"/> Friday | £50.00  |
| <input type="checkbox"/> Conference Dinner on Thursday 18 November 2010 for day delegates |                                   |                                 | £45.00  |
| <input type="checkbox"/> I would like vegetarian meals                                    |                                   |                                 |         |

### Exhibition Fee: (additional exhibitors should register at members rates)

- |   |         |
|---|---------|
| <input type="checkbox"/> Exhibition Fee covers exhibition space (2m x 1m), table and chairs and one person registered as a delegate | £525.00 |
|---|---------|

### Accommodation: (a number of rooms have been reserved at two hotels St David's Hotel & Spa and Future Inn Cardiff Bay)

Special rates have been arranged in association with Eventfixers. This is a free service, please contact eventfixers direct to make your reservation and quote "IOA Cardiff" to obtain these rates.

Email: [reservations@eventfixers.com](mailto:reservations@eventfixers.com) Tel: 0845 0500 884 Fax: 01229 400228

Full details available on the IOA website: [www.ioa.org.uk](http://www.ioa.org.uk)

### WMC Tour (allocated on a first come first served basis)

- |   |                                       |
|---|---------------------------------------|
| <input type="checkbox"/> Thursday 13:30 | <input type="checkbox"/> Friday 13:30 |
|---|---------------------------------------|

**Proceedings:**  I am unable to attend the conference. Please send me a copy of the Conference CD proceedings.

- |   |   |
|---|---|
| <input type="checkbox"/> Members £20.00 | <input type="checkbox"/> Non-Members £30.00 |
|---|---|

### Payment instructions:

Total: £

There are four ways to pay. Please indicate your chosen method: (CANCELLATIONS ARE PAYABLE IN FULL)

- |   |   |
|---|---|
| <input type="checkbox"/> 1. Cheques:                | Payable to "Institute of Acoustics" (in £ Sterling drawn on UK bank account)  |
| <input type="checkbox"/> 2. Direct to Bank:         | BACS: Account No: 00375204 Sort Code: 30 94 81  |
| Bank Transfer:                                      | SWIFT LOYDGB21024 IBAN GB27LOYD30948100375204   |
| Bank Address:                                       | Lloyds TSB Knightsbridge Branch, PO Box 663, 79-81 Brompton Road, London SW1 1DD<br>A copy of the instructions to the bank should be attached with the registration form.<br>Please quote 'RS2010' and the name of the delegate registered. |
| <input type="checkbox"/> 3. Invoice:                | Please supply purchase order number: <input type="text"/>   |
| <input type="checkbox"/> 4. Credit Card/Debit Card: | I enclose credit card details for the full amount: VISA, DELTA, MASTERCARD, MAESTRO, SOLO, ELECTRON   |
| Card Number:  | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>                           |
| Card Expiry Date:                                   | <input type="text"/> / <input type="text"/> Security Code: <input type="text"/> <input type="text"/> <input type="text"/> last 3 digits on back of card   |
| Maestro only: Issue No.                             | <input type="text"/> or Valid from: <input type="text"/> / <input type="text"/>   |

Card holders name: (if different from above)

Card holders address:

Postcode: