

MUSIC EVERYWHERE: AUDIO TECHNOLOGY ENHANCING CHOICE, ACCESS AND QUALITY

ABOUT THE CONFERENCE

The 23rd AES UK Conference will cover a wide range of techniques and technologies involved in the dissemination and reproduction of music and audio in diverse contexts. Presentations will cover both the most recent research and the latest practical developments in the art of distributing and replaying sound.

Topics covered within the conference, which encompasses almost 20 papers, include: distribution of audio over IP both within broadcasting organisations and to listeners; application of DSP to counter room acoustic effects and to enhance audio quality from compact devices; the future of digital radio services; challenges facing high quality audio reproduction in-car; the latest headphone technologies, including the reproduction of surround sound via headphones; design of loudspeakers for gaming and other challenging applications; microchip audio solutions for hi-res audio media and Bluetooth; the ramifications of widening participation in music production; and music in virtual worlds.

Companies presenting papers include: APT, Arqiva, Audyssey Laboratories, BridgeCo, CSR, HarmanBecker, Nine Tiles Networks, Oxford Digital, Sennheiser, Smyth Research, ST Microelectronics, THX and Understanding & Solutions. (Note: the conference programme is subject to confirmation.)

In addition to the paper presentations there will be four demonstration rooms in operation during the conference, showing the following:

- Surround sound via headphones (Smyth Research)
- DSP room correction applied to a surround sound system (Audyssey)
- Beam steering and other effects using a DSP controlled loudspeaker array (THX)
- The application of DSP sound processing to small devices (Oxford Digital).

WHO SHOULD ATTEND

The Conference is a must for anyone who is involved in, or intends to be involved in, the delivery of audio within the broadcasting, professional or consumer electronics industries or the academic world. Application areas include: audio networks, internet audio, headphones, in-car

audio, digital radio, DSP, gaming and the design of consumer replay equipment.

CONFERENCE INFORMATION

As last year, the Conference will be held at New Hall College, Cambridge, over two days: Wednesday 9 and Thursday 10 April 2008.

Conference proceedings, lunch, refreshments and Wednesday evening's dinner are included in the registration fee of £348 +VAT (£298 +VAT for AES Members). We are pleased to have been able to hold this price from last year and to offer enhanced value in the form of free wireless internet connection within the conference room and via wired ethernet in the optional on-site accommodation. Rooms in college are available at a very reasonable rate – see the booking form for details.

A special discounted rate is available for students. In addition, a limited number of bursaries, sponsored by companies in the audio industry, is available to bona-fide UK students. Full details of student rates and bursaries can be obtained by contacting the AES UK office.

The venue for the event is New Hall, the Cambridge college for women founded in 1954. The college buildings were constructed from 1964 onwards and are regarded as modern architectural masterpieces, arranged around the stunning Dome dining hall. The college is set in 11 acres of grounds with informal lawns and gardens.

Optional overnight accommodation for the conference has been organised within the college. This residential arrangement maximizes the opportunity to interact with other delegates and to experience the true ambience of a Cambridge college near the heart of this ancient, world-renowned seat of learning.

The AES 23rd UK Conference is an event not to be missed!

For more information and a booking form visit the Conference web site:

www.aes.org/ukconference

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AES

Audio Engineering Society 23rd UK Conference



Audio technology enhancing choice, access & quality

Audio over IP • Life after IP • Home audio networking • Tiny DSP
DSP room correction • Headphone design • Headphone surround
Hi-res audio chip solutions • Audio via Bluetooth • In-car audio challenges
Line arrays with controlled directivity • The future of digital radio
Music in virtual worlds • Audio demonstrations
and more...

Chair: Keith Howard

New Hall, Cambridge, 9–10 April, 2008



WEDNESDAY 9TH APRIL 09:45-17:30

09:45 Introduction by Keith Howard, conference chair

10:00 Keynote address: What is happening to the global hi-fi industry?

– *John Bird, Understanding & Solutions*. This opening presentation will set the scene by considering market trends including the rise of MP3, its impact on the home audio systems market, new trends including digital speakers and networked audio, and the market evolution and current status of home theatre.

11:00 COFFEE & DEMONSTRATIONS

Four demonstrations will be operating throughout the conference, running in the Council Room, both halves of the Vivien Stewart Room and the Froud Room. The main demonstrations will consist of surround sound via headphones, DSP room correction, and a line array loudspeaker with controllable directivity. The fourth room will contain a number of smaller demonstrations, including DSP enhancement of small device sound quality. A selection of cars will also be available, parked in front, running demonstrations of production and research in-car entertainment systems.

11:30 Audio over IP – current status and future challenges

– *Greg Massey, APT*. The history of transporting audio over telecommunications networks is chequered with questions over its reliability for broadcast applications. The introduction of IP-based codecs has raised the same questions. Manufacturers have overcome or exploited their characteristics to enable the use of IP-based codecs in the broadcast chain without sacrificing the features of older technologies.

12:00 Life after IP

– *John Grant, Nine Tiles Networks*. Internet Protocol is currently the dominant networking technology, but it is

less than ideal for the streamed media traffic for which it is increasingly used. This paper outlines the issues of which audio professionals should be aware when using IP, and describes a technology which fixes the problems for streamed media while keeping IP for the things it does well.

12:30 Standards-based audio networking for the home

– *Steven Harris, BridgeCo AG*. Topics covered in this paper include: a home networking overview; network standards, wired and wireless; UPnP, PlaysForSure, DLNA; DRM schemes; audio servers; premium audio services direct from the internet; user interface challenges – how to find audio that you like; outlook for the future; and real products that you can buy today.

13:00 LUNCH IN THE DOME & DEMOS

14:30 Design challenges for compact headphones

– *John Willett, Sennheiser*. Compact headphones, particularly insert types, have become increasingly popular in recent years. This paper will consider the particular design challenges posed by these compact designs when attempting to achieve the highest possible sound quality.

15:00 Headphone surround monitoring for professional use

– *Mike Smyth, Smyth Research*. Smyth SVS is an audio virtualisation algorithm for use with standard stereo headphones. As implemented in the Smyth Realiser, SVS could be readily used by professionals as a multichannel surround monitoring tool for recording, post-production and broadcasting. It also has immediate applications in consumer media players.

15:30 TEA & DEMONSTRATIONS

16:00 Signal processing methods for room equalization

– *Chris Kyriakakis, Audyssey Laboratories*. The performance of audio systems is severely limited by the acoustical interaction of the loudspeakers with the playback environment. Room equalization methods can be effective in addressing such problems, but they must be able to combine measurements from multiple positions within the listening area and use both time-domain and frequency-domain information.

16:30 Line arrays with controllable directional characteristics. Part 1 – Theory

– *Laurie Fincham, THX*.

17:00 Line arrays with controllable directional characteristics. Part 2 – Practice – *Jayant Datta, THX*.

17:30 CLOSE
19:00 DINNER IN THE DOME
DEMONSTRATIONS
CONTINUE AFTER DINNER

THURSDAY 10TH APRIL 09:30-17:30

09:30 Digital Radio Mondiale: Bringing digits to the AM bands

– *Oliver Haffenden, BBC*. Digital Radio Mondiale (DRM) is a digital radio system for the long-, medium- and short-wave bands. This paper will explain how it was designed to meet the challenges of propagation in these bands. We will also present some of our recent work, including our involvement in a trial of DRM with BBC Radio Devon.

10:00 DAB – what is under the bonnet?

– *Simon Mason, Arqiva*. This presentation will look first at national and local networks in the UK and what services they are currently delivering. The second section will look at services and applications that can be carried in the future. The final section will look at what part broadcast radio will play in our lives over the next 10 years.

10:30 Lighthouses, pilots and bitrates: riding the waves of internet radio

– *Nick Sharwood-Smith, Wave Science Technology*. This paper will take a wide-ranging look at the state of radio on the internet and consider its possible future. This is placed in the context of broadcast radio development from Medium Wave and FM to DAB and IP.

11:00 COFFEE & DEMONSTRATIONS

11:30 Market-driving trends in automotive audio

– *Tim Nind, HarmanBecker*. OEM automotive audio has come a long way in the past 20 years. This presentation lifts the lid on some of the exciting work going on at a world leader in OEM branded audio systems. It discusses future trends and possible solutions for system architectures, processing, components and development tools.

12:00 Managing widening participation in music and music production

– *Robert Toulson, Anglia Ruskin University*. Participation in music-related activities has soared since the development of internet distribution and the changing affordability of home music production systems. This paper investigates and evaluates the current landscape of audio engineering tools and music production methods to identify and map the skills deficiencies created by widening participation.

12:30 LUNCH IN THE DOME & DEMOS

14:00 Keynote address: A presentation by Amir Majidimehr (previously corporate vice president of the Consumer Media Technology Group within the Mobile and Embedded Devices Division at Microsoft). For this presentation we have asked Mr Majidimehr to look into audio's future, to envisage how we will buy music and video, how we will play it, how will we distribute it around the home, and how we will access it on mobile devices and in-car.

15:00 Music in the metaverse

– *Richard Elen, Radio Riel/Brideswell Associates*. Second Life is the most popular 'metaverse', or virtual world, with several million inhabitants. Getting together 'in-world' to enjoy live music and DJ sessions in virtual clubs is an extremely popular activity. This paper discusses the music production and distribution chain in Second Life and how to maximise audio quality and effectiveness in this virtual environment.

15:30 TEA & DEMONSTRATIONS

16:00 Applications and challenges of processing audio over Bluetooth

– *Gary Spittle, CSR*. Bluetooth-enabled devices that stream audio are increasingly popular. The expectation has advanced from the link being a simple cable replacement. A summary of the challenges faced using wireless audio connections over Bluetooth is presented, along with a description of algorithms to improve the audio at both ends of a link.

16:30 STm7200: a high definition multimedia system on-chip

– *Gael Lassure, STMicroelectronics*. The STm7200 system-on-chip targets a wide range of multimedia applications. This paper describes the efficient and evolutive component-based Embedded Audio FirmWare architecture. It will show how the host processor distributes and balances the computation-intensive workload over up to four multimedia processors.

17:00 Tiny DSP: low power DSP core and tools for rapid algorithm development and tuning for 'device mastering'

– *Nathan Bentall, Oxford Digital*. Market expectations of small size and low cost, and a requirement for very low power consumption, create difficult challenges in the electric and acoustic design of consumer devices including mobile phones, laptop computers and flat panel displays. 'Sound improvement' algorithms can improve the listening experience but high sensitivity to component cost can rule out many DSP devices.

17:30 CLOSE