AES 114th CONVENTION

2003 March 22–25
RAI Conference and Exhibition Centre
Amsterdam, The Netherlands

Bathed in glorious spring sunshine, the AES 114th Convention brought thousands to Amsterdam to meet, learn, and share in the broad community that is the audio industry. A more extensive and rich technical program than ever before included newly established educational seminars on basic audio engineering issues as well as exhibitor seminars that enabled delegates to discover more about the latest product developments. Peter Swarte, convention chair, worked tirelessly with his convention committee over the year leading up to the event to ensure that there was something for everyone at Amsterdam's RAI Centre.

OPENING CEREMONY AND AWARDS PRESENTATION

Officially opening the convention on the evening of the first day, AES President Kees Immink, himself a native Netherlander, acknowledged that some people might have hesitated to come to the convention at this time due to economic worries and concerns about the political situation in the Middle East; but he pointed out that there were even better reasons to come. Peter Swarte was pleased to announce that 250 exhibitors were participating and delegates from over 70 countries had preregistered for the event.

Because the chair of the Awards Committee, Roy Pritts, was grounded in Denver, Colorado, by over four feet (about 1.2 meters) of snow, Past President Garry Margolis was pleased to announce the AES awards. The Publications Award, announced by *Journal* Editor Daniel von Recklinghausen, was given this time to a large group of authors who had jointly contributed to an influential paper entitled "The ITU Standard for Objective Measurement of Perceived Audio Quality," published in the *Journal of the Audio Engineering Society*, volume 48, number 1/2. Thilo Thiede, William Treurniet, Roland Bitto, Christian Schmidmer, Thomas Sporer, John Beerends, Catherine Colomes, ➡

Opening Ceremonies and Awards

Kees Immink,
AES president

Stuart Bruce,
keynote speaker

Roger Furness,
AES executive director

Peter Swarte,
convention chair

Garry Margolis,
filling in for Roy
Pritts, awards chair

Daniel von
Recklinghausen,
editor

Kees Immink, center, surrounded by Publications Award winners, from left, Roland Bitto, Christian Schmidmer, Karlheinz Brandenburg, Thomas Sporer, Michael Keyhl, John Beerends, Gerhard Stoll, and Bernhard Feiten. Thilo Theiede, William Treurniet, and Catherine Colomes could not attend.

Michael Keyhl, Gerhard Stoll, Karlheinz Brandenburg and Bernhard Feiten formed an impressive group for their photograph on the stage, exemplifying the impressive fruition of international cooperation and research.

The Board of Governors Award, given for outstanding contributions to the Audio Engineering Society, was presented to Nickolay Ivanov for chairing the AES 21st International Conference in St. Petersburg, Russia; Martin Wöhr for chairing the 112th Convention in Munich; and Daniel

Zalay for chairing the 108th Convention in Paris.

Fellowships were conferred upon John Beerends for successful application of principles of perception and cognition to objective quality measurement of audio-visual signals and Rinus Boone for his work in the fields of outdoor noise propagation, audio transducers, multichannel sound reproduction, simulation, and auralization. The large crowd acknowledged the important contributions of the award winners with warm applause.

Board of Governors Award recipients, clockwise from above, Nickolay Ivanov, Martin Wöhr, and Daniel Zalay
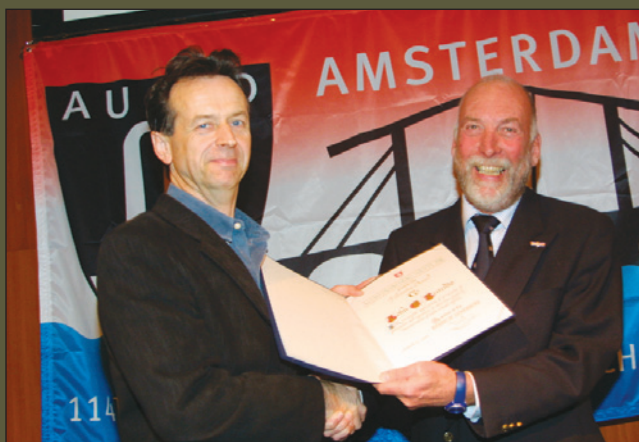

Fellowship Awards recipients John Beerends (left) and Rinus Boone

The keynote address at the 114th Convention was given by Stuart Bruce, the successful British recording engineer and producer who now runs an independent business as part of Real World Studios in Bath, England. Bruce opened in combative style, asking the blunt question, "Why is the mainstream music business dead on its feet?" Customers are leaving us in droves, he suggested, and the endless diet of mediocre pop music exemplified by the steady supply of "talent search" series on television are only feeding the phe-

nomenon. "We are living in an era of the blind leading the bland," he contended, with many teenagers going back to the music of the 1960s and 1970s for inspiration. Looking at what is needed if the music business is to regain its vitality and credibility, Bruce proposed that producers and engineers can develop talent—that is how the innovative record labels began in the past. Good music always rises to the surface, even if promoted by relatively small labels, and a number of such enterprises have really learned how to use the Inter-

Ron Streicher (left), AES president-elect, and Stanley Lipshitz giving tutorial seminars.
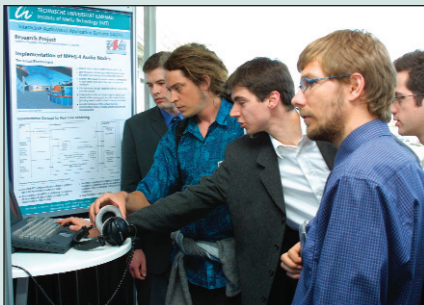
Large group of poster presentations facilitated direct contact with authors and laptop-computer demonstration of new concepts.

Attentive crowd listens to author Rozenn Nicol.

Among exhibitor seminars winning rave reviews were *DVD-Audio: Exploring the Format* (above) and *Super Audio CD Procuction* (inset).

net to their advantage in recent years. "Why not start small and build things up again?" He pleaded for a better dialogue between the studios and educators, mediated by the AES, otherwise we are in danger of losing valued old techniques.

EXHIBITION

Supported for the first time by a popular series of 25 exhibitor seminars that enabled manufacturers to explain their recent developments in greater depth to participants, the exhibition floor buzzed with interest in response to the range of products and services on display. Some of the highlights are reviewed here.

Top of the bill was SSL's launch of two new digital mixing consoles, the C100 and the C200, adhering to the company's one-knob-per-function heritage designed to appeal to a wide range of engineers. The C200 is intended for mixing applications, such as music and entertainment, with a special mobile version available. Among its many features is the novel self-healing DSP that is designed to work around hardware failures; it also has integrated workstation control, full automation, and scalable DSP. Unlike some previous digital mixers, this one will work at both 48- and 96-kHz sampling frequencies, and its 192-kHz-capable Centuri platform is optimized for DVD-Audio applications.

Innova SON showed its new Sy80 digital mixer that is targeted to live applications such as front-of-house and monitoring, as well as live recording and on-air mixing. Also at the forefront of digital console developments was Calrec's new Zeta 100, intended as a live production console for the broadcast market, targeted at local TV and radio operations. This mixer is claimed to enable broadcasters to invest in digital technology at a price similar to that of comparable analog technology. Indeed, in the analog domain there are still new consoles being developed, and Yamaha showed its new PM5000 mixer that is primarily intended for front-of-house live applications, with a large number of independent scene memories for automation purposes.

Multichannel transmission has finally come to the European broadcasting industry in the form of broadcasts involving 5.1 surround from ORF (Austrian Broadcasting Corporation) and Swedish Radio. ORF's New Year's Day broadcast from Vienna was highlighted on the Dolby stand, showing evidence of Dolby Digital broadcasting by the Austrian network. Furthermore, Swedish Radio made a broadcast greeting to the AES convention in 5.1 surround over a Sirius 2 satellite transmission using DTS encoding at a very high rate of 1.5 Mbit/s, calling ➡

From left, Menno van der Veen, technical tours chair; Peter Swarte, convention chair; John Beerends, workshops vice chair

Ronald Aarts (right), papers chair, and author John Vanderkooy

Werner de Bruijn, education events chair

Stan Tempelaars (left) and Alex Balster, historical events chairs

Thierry Bergmans, exhibits organization

Jan Romijn (right), banquet chair

it an experiment in "high-definition radio."

Birthdays were in order at the 114th. Loudspeaker manufacturer Genelec celebrated its 25th anniversary at the convention by giving away a monitoring system every day. The systems got bigger each time and culminated in a choice of the 1029.LSE PowerPak or 6040A systems. In addition, Neumann launched its 75th-birthday Sound Engineering Contest with prizes including U87 and TLM103 microphones. Linn Products introduced its 328A professional monitor that has remarkable designer styling for near- and mid-field applications.

DSD and SuperAudio CD development is gathering speed, including noise removal tools from PureNotes for the Merging Technologies DSD platform and the new Sony SuperMac DSD interface that enables either standard PCM or DSD signals at a variety of different sampling frequencies to be transmitted over CAT5 cabling. Philips described the DSD-IFF file format that enables DSD material to be interchanged between systems. DVD-Audio also had a greater presence at this convention, with a demo room containing

Erik Larsen (right), papers vice chair, with author Matti Karjalainen

We Thank…

Peter Swarte
chair

Ronald Aarts
papers chair

Erik Larsen
papers vice chair

Diemer de Vries
workshops chair

John Beerends
workshops vice chair

Werner de Bruijn
education events chair

Stan Tempelaars
Alex Balster
historical events chairs

Jan Romijn
banquet chair

Michiel van Eeden
facilities chair

Menno van der Veen
technical tours chair
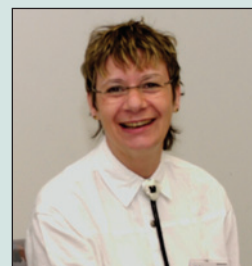
Han Tendeloo
program coordinator

Michiel van Eeden (right), facilities chair, and Ron Streicher, AES president-elect

Diemer de Vries, workshops chair

Han Tendeloo, convention program coordinator and AES secretary


Gisèle Clark, promotion

From left, Peter Swarte, convention chair; Stefani Renner, press relations, Roger Furness, executive director

Meridian top-of-the-range replay systems to demonstrate DVD surround reproduction from companies such as AIX Records. This small independent label produces DVD-Audio disks containing mixes from different "standpoints," such as one from within the ensemble and another from an audience position, demonstrating the versatility of the format. SADiE also showed its new Series 5 range of workstations that incorporates DSD mastering and authoring as an alternative to conventional PCM.

If recording up to 100 kHz is your aim, for SuperAudio CD or DVD-Audio, then Sanken's CO-100K omni microphone, shown for the first time here, may be suitable. The company claims that this is the first microphone in the world to offer 100-kHz frequency response outside of the measurement microphone domain. It was designed together with NHK's research laboratory.

Networking and interchange were high on the agenda in a number of places. Digigram's new EtherSound distribution technology can handle 64 channels of audio on CAT5 cabling and take advantage of standard Ethernet switches for rout-
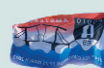
Jens Blauert, 114th Richard C. Heyser Distinguished Lecturer, during lecture; receiving certificate from Technical Council officers, from left, Robert Schulein, Wieslaw Woszczyk, and Jürgen Herre; and answering questions at reception after lecture.

human perception, and spatial perception in particular. His book *Spatial Hearing* has been translated into many languages. His lecture, "Communication Acoustics: Audio Goes Cognitive," dealt with the new challenges that face researchers in building models that take account of the higher level perceptual organization of auditory information. He related these themes to the complementary fields of CASA (computational auditory scene analysis) and VR (virtual reality).

Blauert's lecture was packed to the seams, with over 250 people, including a number of his former students, listening attentively. He concluded his lecture with a list of the 50 Ph.D. students who have contributed since 1980 to the work discussed. One of his students had helped to generate some remarkable footage of shots from a storage oscilloscope that indicated source broadening effects, which Blauert played as a movie showing dynamic changes.

The Technical Council reception that followed this event enabled delegates to meet each other in an informal atmosphere over a glass of wine.

SEMINARS

The AES took a bold step to further its educational mission at the 114th by instigating a series of 10 seminars led by key figures in the industry. The aim of these was to offer visitors an opportunity to obtain a good basic grounding in many of audio's key issues. The seminars proved extremely popular with students and professional delegates alike.

An enthusiastic audience turned out to hear two of the industry's best-known academics, Stanley Lipshitz and John Vanderkooy. Their seminar, *Basics of Digital Audio*, included numerous demonstrations using custom-made equipment. Two seminars were on surround: *Stereo and Surround Microphone Techniques*, chaired by Geoff Martin, and *How to Set Up 5.1 Surround*, presented by Andrew Goldberg. Martin also ran another seminar, *Microphone Technique Theory for Stereo and Surround*, which was complemented by Ron Streicher's *Working with Microphones: A Practical Review*. Diemer de Vries' excellent primer, *Basics of Room Acoustics*, was also well received. Indeed there was something for almost everyone—including quite a few seasoned pros who probably felt like sitting in on a refresher course. Other seminars included *Hearing Damage in Musical Practice*, *Grounding and Shielding*, *Mixing and Mastering*, and *Basics of Sound Reinforcement*, given by Peter Swarte, 114th convention chair.

WORKSHOPS

In addition to coorinating the new seminar series, Diemer de Vries and John Beerends put together the well-established workshop program that contained 13 separate events of various lengths covering diverse topics from recording technology to measurement techniques. Of particular interest at ➡

ing purposes. Lawo explained its mc2Net series of products that complements its digital mixers and enables them to be integrated into networked studio complexes, while Otari advertised increased speeds for its ND-20 fibre optic network system based on IEEE 1394 mLAN technology. A range of ISDN and broadcast contribution encoding systems were also on display from a variety of manufacturers.

Further supporting the migration from dedicated audio formats to generic mass storage media for audio, Fostex's PD-6 location recorder was introduced to enable multichannel audio recording along with timecode on a portable DVD-RAM recorder. This innovative product utilizes a form of mini-DVD-RAM that is only 8 cm in diameter, and enables audio from location recordings to be uploaded directly to editing systems. Otari gave visitors a preview of its DR-100 multichannel recorder that is backward compatible with RADAR-II material, and its DR-10 MO recorder designed for broadcasting applications. Nagra showed a new two-channel machine, the Nagra V, that uses high-resolution disk recording. It is designed for location recording in film and video applications, the latest in Nagra's long tradition of robust outdoor machines.

HEYSER LECTURE AND RECEPTION

The Richard C. Heyser Memorial Lecture, given at each convention in honor of its namesake, organized by the Technical Council, was given this year by Professor Jens Blauert. Blauert is well known around the world for his research on
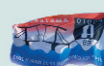
the present time was *The Future of High Resolution Audio*, chaired by Malcolm Hawksford, at which panelists debated the various formats and technologies that offer higher resolution than that offered by the CD. *Multichannel Surround Sound: A Chance for Enhanced Creativity*, chaired by producer Martha de Francisco, brought together a number of top recording engineers and producers from broadcasting and the pop and classical fields to discuss the ways in which surround sound may increase the creative options open to users. James Mallinson, for example, claimed that high-resolution formats for the first time brought back the sense of emotion conveyed by music reproduction that he remembered from analog days, while others claimed that this was of relatively minor importance compared with the enhancement provided by surround sound.

Other interesting workshops included *Low Bit-Rate Coding of Spatial Audio*, which looked at the different ways in which interchannel similarities and differences can be exploited in data reduction. It included a fascinating historical tour of spatial audio representation since the dawn of stereo, given by Mark Davis of Dolby Labs. Additional workshops were on sampling rate convertors, MPEG-4, LAN delivery of audio and application to digital libraries, handset and headset testing, electronic reverberation for concert halls, correlation between subjective and objective measurements for automotive sound systems, AES47, large-room acoustics, the value of information, and wavefield synthesis applications.

PAPERS SESSIONS

During the convention the papers sessions were often filled to capacity or beyond, in an extremely wide-ranging and interesting program coordinated by Ronald Aarts and Eric Larsen. A strong emphasis was on psychoacoustics, perception and listening tests, as well as spatial perception and processing, and multichannel sound. The topic of wavefield synthesis came up frequently, in conjunction with presentations from members of the European CARROUSO project that is nearing its close. They also offered a demonstration of its technology in a room at the RAI Centre.

A paper from Matti Karjalainen and some of his students discussed the innovative concept of wearable augmented reality, involving small headphones mounted in the ear canals, in conjunction with miniature microphones and a real-time audio signal processing system that can feed the ears with synthetically processed spatial signals to complement natural acoustic cues. This fascinating paper showed the direction for much future work in this area and was reminiscent of some science-fiction concepts wherein communications tools are integrated seamlessly with the subject's natural senses. Also fascinating in this field was a paper by Daniel, Nicol, and Moreau comparing high-order ambisonics and wavefield synthesis, showing that there were more similarities than might otherwise have been thought, since both attempt some form of accurate wavefront reconstruction in the listening area. In a subsequent session Thomas Sporer likened this situation to that which had existed earlier in the field of low bit-rate coding, when people argued about the merits of transform coding versus subband coding, eventually coming to realize that these were really just two sides of the same coin, so to speak.

Ticketholders boarding bus for technical tour.

Historical Corner drew crowds to displays of vintage equipment and lectures, such as Tim de Wolf's (above) on record-cutting techniques.

AES 114th is year's premier Pro Audio event in Europe.

Gilbert Soulodre's excellent paper on spatial measurements corresponding to listener envelopment showed the results of numerous correlation analyses to discover the most reliable combination of gain (G) and spatial (S) components, leading to a new term GSperc. The audience was amused to note the initials of this term and wondered if

their derivation had been more than a coincidence.

There was a strong emphasis on signal processing and low bit-rate coding during the last two days of the convention, including a number of papers on high-resolution conversion and novel modulators for sigma–delta applications. Papers from James Angus and Harpe, Reefman and Janssen dealt with a new type of SDM called a Trellis convertor that is designed to give lower distortion and S/N ratios than former types, in this case with lower computational load than previously thought necessary.

Further sessions covered microphones; automotive audio and instrumentation and measurement; room acoustics and sound reinforcement; audio networking; and analysis and synthesis of sound. There were also a large number of poster presentations in the Topaz Lounge outside the conference rooms where authors met with interested delegates to discuss their work. A full listing of all papers and ➥

114th banquet was held in elegant Winter Garden of Grand Hotel Krasnapolsky. Music was provided by Pumps in Blue.

Student recording competition drew large crowd; Martha De Francisco (left) helped with judging.

Ron Streicher, second from left, gave copies of his book to winners of student recording competition: from left, Raphel Allain (jazz/folk), Kent Walker (classical), and Thomas Geiger (pop/rock).

Newly elected SDA officers Natalia Teplova (second from left) and Martin Berggren (right) are joined by outgoing officers Feliz Dreher and Isabella Biedermann.

their abstracts and the complete list of workshops begins on page 405 of this issue. A CD-ROM of all the 114th Convention papers is available.

TECHNICAL TOURS

An appealing program of technical tours, organized by Menno van der Veen, provided an opportunity to visit a number of external venues. These included Polyhymnia Classical Recording Centre in Baarn, where delegates were treated to a demonstration of the company's high resolution SACD surround recordings. Visitors could also take trips to Dutch View and NOB Cross Media Services in Hilversum; Record Industry vinyl pressing plant in Haarlem; Philips Research Laboratories in Eindhoven; and Delft University of Technology.

HISTORICAL PRESENTATIONS

The Historical Corner on the exhibition floor, coordinated by Stan Tempelaars and Alex Balster, contained examples of vintage recording and measuring equipment as well as a number of ancient musical instruments. A number of short presen-

tations were also given each day by experts in their fields on topics such as the history of record cutting, vintage measuring equipment, ancient electronic music, and other topics.

SPECIAL EVENTS

Both the AES mixer party and the banquet provided vibrant opportunities for delegates to relax and enjoy themselves together with their colleagues, thanks to the planning of Jan Romijn. The banquet, held this year in the elegant Winter Garden of the Grand Hotel Krasnapolsky, was a highlight of the convention, accompanied by the ensemble Pumps in Blue.

Beer is arguably a part of the staple diet of the Netherlanders, and a few people were able to enjoy it on a tour of the Heineken Brewery Experience at the Stadhouderskade in Amsterdam. This tour took visitors through a voyage of discovery involving the world of Heineken Beer, including its malt silos and brew house, enhanced by a state-of-the-art audio-visual system installed by Mansveld-Eindhoven, whose representatives were on hand to answer technical questions.

Conference Policy Committee meeting: from left, Jan Pedersen, Nick Zacharov, and Roger Furness.

John Nunn (left), Standards Committee chair, and Mark Yonge, Standards manager

Publications Policy Committee meeting: Richard Small (inset), chair; from left, Stanley Lipshitz, Søren Bech, and Kees Immink;

Regions and Sections meeting: Subir Pramanik (left), chair, and Neville Thiele, vice president, International Region

Technical Council meeting: from left, Jürgen Herre, vice chair; Wieslaw Woszczyk, chair; and Bob Schulein, vice chair

Mark Yonge (left), Standards manager, with George Massenburg, chair of Technical Committee on Studio Practices and Production


STUDENT ACTIVITIES

Students were particularly involved in the tutorial seminars mentioned above. The seminars were a big attraction for those at the earlier stages in their careers. Other education student activities, organized by Werner de Bruijn, included the Education Fair, which provided a forum for discovering information about training courses, and the Job/Career Seminar, which addressed the issue of entry-level employment for those just graduating. The Student Delegate Assembly (SDA) met twice to discuss nominations and to elect student representatives for Europe. There was also an exciting recording competition and a poster session demonstrating the exceptionally high standard of practical and academic work created by students of AES sections around the world.

TECHNICAL COUNCIL AND STANDARDS COMMITTEES

Throughout the convention a full program of standards and technical committee meetings took place, thanks to the sterling work of Mark Yonge and John Nunn for Standards, and Wieslaw Woszczyk, Jürgen Herre, and Bob Schulein for the Technical Council. A new technical committee on semantic audio analysis was formed at the 114th. Chaired by Mark Sandler, this committee intends to deal with topics such as music pitch and rhythm analysis, meaning extraction, and semantic content analysis. The timing is good for the creation of this new committee, following the plea of Heyser Lecturer Jens Blauert for audio to "go cognitive."

Everyone who attended the 114th is now more aware of the challenges/opportunities facing the industry. The city of Amsterdam, again, provided a welcome atmosphere for the exchange of ideas and information central to the mission of the AES. Be cognitive of the next opportunity to meet your colleagues and learn of the latest scientific and commercial advancements at the AES 115th Convention in New York October 10–13. (For details on all upcoming Society activities visit www.aes.org.)
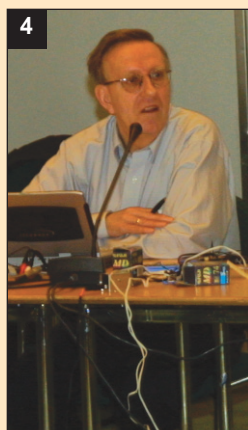
Board of Governors Meets

Meeting on March 26, members of the AES Board of Governors gather from around the world to hear reports from AES officials and standing committees:

1 Kees Immink, president; Jay Fouts, legal counsel

2 David Robinson, governor; Roland Tan, governor; Wieslaw Woszczyk, Technical Council chair

3 Garry Margolis, past president and Nominations Committee chair

4 Han Tendeloo, secretary

5 Curtis Hoyt, governor; Richard Small, Publications Policy Committee chair; Mercedes Onorato, Latin American Region vice president

6 Kunimaro Tanaka, governor

7 Annemarie Staepelaere, governor; Irv Joel, Historical Committee vice chair; Neville Thiele, International Region vice president

8 Søren Bech, Europe Northern Region vice president and Conference Policy Committee chair; Markus Erne, Europe Central Region vice president; Daniel Zalay, Europe Southern Region vice president; Ron Streicher, president-elect

9 Marshall Buck, treasurer, Convention Policy Committee chair, and Finance Committee chair

10 Daniel von Recklinghausen, editor; Subir Pramanik, Regions and Sections Committee chair

11 John Nunn, Standards Committee chair; Roger Furness, executive director

12 Karl-Otto Bäder, governor; James Kaiser, USA/Canada Central Region vice president; Jim Anderson, USA/Canada Eastern Region vice president