125th AES CO

2008 October 2–5

MAKE THE RIG

AUDIO
A
ES
®

EXHIBITION HOURS

Friday, October 3rd
10:00 am – 6:00 pm

Saturday, October 4th
10:00 am – 6:00 pm

Sunday, October 5th
10:00 am – 4:00 pm

Moscone Convention Center
San Francisco, California

The AES 125th Convention in San Francisco was as a magnet for 17,892 visitors from around the world for four days in early October, a tribute to the outstanding organizational efforts of convention cochairs John Strawn and Valerie Tyler and their hard-working committee. Finding a highly rewarding technical program and a vibrant exhibition, delegates coming to AES were presented with a plethora of opportunities to choose from to discover the latest in audio research and technology. With Silicon Valley nearby and a vibrant music industry in the Bay Area, San Francisco proved to be an ideal location for "Make the Right Connections," the theme of the convention. The committee put together a program to beat all programs, with a strong emphasis on live sound and a new stream for broadcasters. A bustling exhibition floor attested to the good health of the audio industry in its many faceted forms.

Opening Ceremonies and Awards

Roger Furness,
AES executive director

Bob Moses
AES president

John Strawn
convention cochair

> How The Music Recording Industry Works Today:
> • The Internet Changed Everything!

Chris Stone, keynote speaker, at the opening ceremonies

George Massenburg, right, receiving Gold Medal Award from Bob Moses

Jay McKnight receiving Distinguished Service Medal Award

Jim Anderson, top, and Peter Swarte receiving Board of Governors Awards

OPENING CEREMONY

At the opening ceremony Roger Furness, AES executive director, welcomed delegates to San Francisco, noting that this year represents the 60th anniversary of the Society. Bob Moses, president, said he felt that coming to the convention was a bit like going to Disneyland because of all the cool things to see and hear. Now more than ever, he said, it is important that we work together to get through these challenging times. Everyone who considers themselves an audio professional knows what an important event this is. Countless hours go into putting together a convention like this, and Moses warmly congratulated the convention committee for its achievement. John Strawn identified the talented volunteers on the committee, and in addition he commended McCune Sound for putting together the excellent sound reinforcement. The committee was congratulated with grateful applause from the assembled company.

Neil Gilchrist, Awards Committee chair, took to the stage to introduce those individuals who were receiving awards in recognition of their achievements or service to the Society. The Publications Award was given this year to an author under 35 years of age, Roger Grinnip, for his outstanding ➡
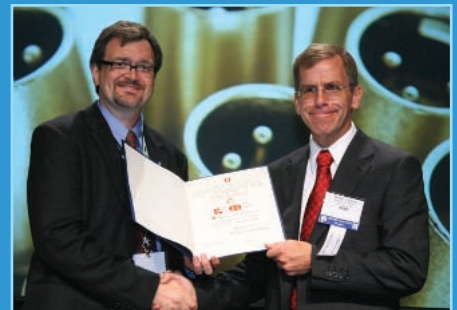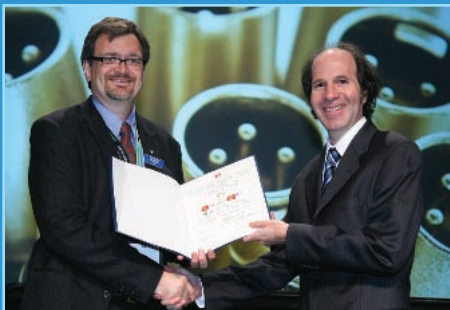
Neil Gilchrist, Awards Committee chair, announcing the names of award recipients

Keith Johnson receiving the Silver Medal Award

John Vanderkooy (left), editor, presenting Publications Award to Roger Grinnip III

Fellowship Award recipients: from left, top row, Jonathan Abel, Angelo Farina, and Rob Maher; 2nd row, Peter Mapp, Christoph Musialik, and Neil Shaw; 3rd row, Julius Smith, Gerald Stanley, and Alexander Voishvillo; 4th row, William Whitlock

At the AES business meeting: clockwise from top left, Roger Furness, Bob Moses, Han Tendeloo, Chris Freitag, and Louis Fielder

Alastair Moore (right), winner of the 125th Convention Student Paper Award, receives his certificate from Rob Maher, papers cochair.

Among the authors presenting papers in lecture sessions were, clockwise from top left, Stefan Feistel, Eric Benjamin, Victor Sparrow, and Sylvain Choisel.
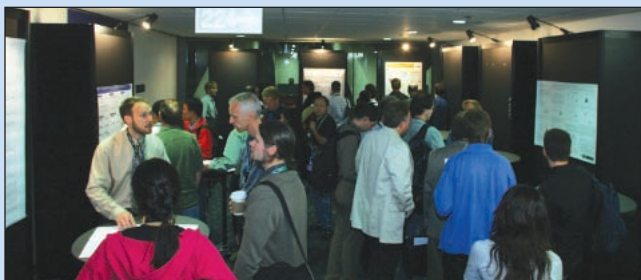
Authors presenting papers in poster sessions were able to present desktop demos on their laptop computers and engage in extended conversations with visitors.

Journal (2006 March) paper "Advanced Simulation of a Condenser Microphone Capsule." Board of Governors Awards were presented to Jim Anderson and Peter Swarte in recognition of their chairmanship of the two previous conventions. Fellowship Awards were presented to the following people: Jonathan Abel for outstanding contributions to audio effects processing and digital emulation of vintage audio processors; Angelo Farina for consistently contributing to the science of audio measurements; Rob Maher for research contributions in, teaching of, and service relating to digital audio signal processing; Peter Mapp for work on sound reinforcement and speech intelligibility; Christof Musialik for outstanding contributions in the development of advanced digital signal processing tools used in the restoration and filtering of audio signals; Neil Shaw for contributions to engineering acoustics and sound reinforcement and service to the Society; Julius Smith for research contributions in, teaching of, and service relating to digital audio signal processing in music; Gerald Stanley for significant contributions to power amplifier design and electronic networking of communications systems; Alexander Voishvillo in recognition of outstanding achievement in modeling and assessing the nonlinearities of horn drivers and other equipment; and William Whitlock for outstanding contributions to the understanding of grounding, shielding, and balanced interfaces in audio systems. The Silver Medal Award, given in honor of audio pioneers Alexander Graham Bell, Emile Berliner, and Thomas Edison, was presented to Keith Johnson for outstanding contributions, sustained over 40 years, to the advancement of audio quality of recordings through innovations in the areas of analog and digital recording technology, transducers, and music recording techniques. The highly prestigious Gold Medal Award was presented to George Massenburg in recognition of outstanding achievements in technical innovation serving audio engineering, acoustic and equipment design, and music recording and production accomplished consistently over more than 40 years. The awardees were commended by their peers with a round of respectful applause.

The keynote speaker at the opening ceremony was Chris Stone, who gave a wide-ranging speech entitled "The Artist Owns the Industry." Chris cofounded the Record Plant in New York and was both president of SPARS and a cofounder of the Music Producers Guild of America (now the Producers and Engineers Wing of NARAS). "I reckon I'm a pretty good salesman," he said, and proceeded to sell the audience his thesis that "the record industry is alive and well but there are only a few smart people who know how to take advantage of that with today's new business model." The Internet changed everything, explained Stone, which means that the major labels have stopped doing artist development. At the same time equipment has became a lot less

Bosse Ternstrom and Florian Camerer presented one of the 13 workshops at the 125th.

Keith Johnson, left, and John Dunec were among those presenting master classes.

Tutorial presenters included, clockwise from top left, Christopher Struck, Søren Bech, Alex Case, Girish Malipeddi, Jim Williams, and Peter Eastty

expensive, making do-it-yourself the order of the day. These days the artist stays on the road establishing a fan base, and should sell 10 to 30 thousand CDs out of the back of their truck. Once they have done this, they may get a contract with a major production company. A few major labels and studios are doing very well these days, there are just fewer of them. CDs still account for 75 to 90% of the total worldwide market, which is perhaps a surprising statistic, although this is changing fast. Revenue from downloads worldwide is forecast to rise to $5.34 billion by 2012, and unrestricted downloading is now a fact of life. Vertical integration is now the name of the game, whereby there is a direct connection between the different stages of the creation, production, and marketing processes, often under direct control of the artist. "Ask not what the pro audio industry can do for you, but what you can do for the pro audio industry," Stone admonished the audience.

EXHIBITION

The crowded exhibit floor at San Francisco's Moscone Center was filled with the latest offerings in audio technology. Coordinated by Chris Plunkett, deputy director for convention management, and Donna Vivero, exhibit coordinator, over 400 companies from around the world showed off their latest gear and services. Microphones, loudspeakers, mixing consoles, and live sound gear seemed to be among the most prominent products being introduced. The following are a few of the highlights on display on the exhibit floor.

JBL introduced its next generation of loudspeakers, the lightweight and self-powered EON 500. These novel products also include selectable EQ, multiple suspension points, and full-screened back grille. In one of the demo rooms, Genelec was showing its SE (Small Environment) DSP monitoring system especially aimed at monitor setups for small spaces such as mobile trucks, nearfield situations, and audio workstations. This combines a new SE7261A 10-inch subwoofer with 8130A active monitors, having digital inputs. Genelec also showed its new AutoCal GLM (Genelec Loudspeaker Manager) SE software, which is intended to assist users in the set up and calibration of their loudspeakers. Focal Professional was also showing nearfield monitors in the form of the new CMS65 and CMS50 models, designed with aluminum die-cast cabinets that offer exceptional rigidity. These units employ a unique Al-Mg inverted dome tweeter that has low mass and high damping to give a frequency response that extends up to 28 kHz. At the other end of the frequency spectrum, Meyer Sound introduced its 500-HP subwoofer, containing two high-power 12-inch drivers to carry the frequency range down to 36 Hz.

Pushing forward the success of radio microphones, Sony Electronics announced the availability in early 2009 of a new plug-on transmitter that can be used with existed wired microphones to enable them to be integrated with the DWL-01 Series digital wireless microphone system. It also had a number of new system packages in the UWP series of UHF synthesized wireless microphones. Similarly, Shure was promoting its new UR1M micro-bodypack transmitter, compatible with UHF-R wireless systems. Lectrosonics introduced its new HM plug-on transmitter that includes a user-selectable high-pass filter and 100-mW RF output power. Also on the microphone front, DPA Microphones was showing its new 4099 miniature super-cardioid

Valerie Tyler and John Strawn, convention cochairs

Veronique Larcher and Rob Maher, papers cochairs

Joe Carter (left) and Dave Harris, workshops cochairs

Jonathan Novick (left) and Bob Lee, live sound events cochairs

Paul Verna, platinum events chair

From left, Bob Megantz, facilities chair, and Jim McTigue and Conrad Cooke, tutorials and master classess cochairs

instrument microphones, designed specifically for four different instruments: guitar, sax, trumpet, and violin. These handle the particularly high SPLs found at close quarters to musical instruments, with low coloration. A novel miniature microphone no bigger than the head of a match was also being offered by Sennheiser in the form of the MKE 1, which is intended for harsh treatment in the live sound arena, particularly with regard to moisture resistance. At the other end of the size range, Neumann unveiled its new TLM103D, the next in a series of classic microphones with a digital interface. Soundfield covered new ground in the spatial domain with its new SPS200 A-format microphone designed as a lower-cost alternative to the higher-end Soundfield microphones.

In a major revision to its widely used Pro Tools system, Digidesign was previewing Pro Tools 8, which sports a new user interface among numerous other features. A number of new plug-ins are bundled along with five new virtual instruments. The update also includes a doubling in the number of inserts per channel and Elastic Pitch, which is designed to enable pitch transposition of an audio track over up to four octaves in real time. Integrating with Pro Tools and other workstation software is the goal of a number of mixer manufacturers, particularly Solid State Logic whose SuperAnalogue solutions were being shown at the 125th. These are analog front-ends and back-ends to workstations, which enable much of the audio routing and processing to be done in a more conventional analog environment. Matrix is one

David Bialik, broadcast sessions chair

Tamara Horacek (left), historical events chair, and Marina Bosi

such product, offering 16 channels and 40 inputs with full control of the workstation using Ethernet MIDI control protocol.

PreSonus launched its StudioLive 16.4.2 digital performance and recording mixer, which includes built-in Firewire recording and playback capability along with 16 ultraquiet XMAX microphone preamplifiers. Additionally, in the live sound domain, Soundcraft was showing its Si3 digital live sound console, designed to plug in where the analog console used to be. This includes four independent on-board Lexicon processors for digital effects and a physical output meter for every bus. Further offerings in the live sound mixing arena included Allen & Heath's iDRO processing unit, a 2U rack that can accept EtherSound inputs and outputs and provides eight effects engines, integrated

David Bowles (left), technical tours chair, assists attendees getting on a tour bus.

Chandra Lynn, special events chair, and Larry the O, vice chair

Bob Schulein, Technical Council liaison

We Thank...
125th Convention Committee

Valerie Tyler and **John Strawn**
cochairs

Veronique Larcher and **Rob Maher**
papers cochairs

Joe Carter and **David Harris**
workshops cochairs

Conrad Cooke and **Jim McTigue**
tutorials and master classes cochairs

David Bialik
broadcast sessions chair

Bob Lee and **Jonathan Novick**
live sound events cochairs

Paul Verna
platinum events chair

Bob Megantz
facilities chair

David Bowles
technical tours chair

Tamara Horacek
historical events chair

Chandra Lynn
special events chair

Larry the O
special events vice chair

Teri Grossheim, Dottie Kreps, and **Mark Swiderski**
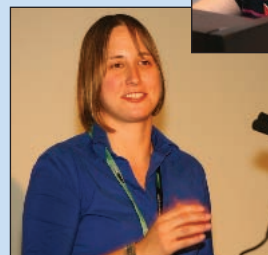student/career events cochairs

Tim Duncan and **Evan Peebles**
volunteers cochairs

Bob Schulein
Technical Council liaison

Volunteers cochairs (behind sign) Evan Peebles (left) and Tim Duncan surrounded by some of their volunteers.

Student/career events cochairs: clockwise from top right, Dottie Kreps, Mark Swiderski, and Teri Grossheim

with the company's iLive digital mixing system. Allen & Heath also launched its first dedicated home recording mixer in over 10 years, known as the ZED-R16, which can record using Firewire or ADAT and whose faders can act as MIDI control or conventional faders. New signal processing modules were also available from BSS, in the company's Soundweb London series of modules. Yamaha previewed its EtherSound stage box, further reinforcing the role of Ether-Sound in the live arena.

TECHNICAL PROGRAM

At the heart of every AES convention is a thriving technical program during which the latest research and development in audio is disseminated, discussed, and critiqued. A strong tutorial element is also included along with special themes, which this year included broadcast and live sound. Coordinating the program at the 125th Convention was a dedicated, veteran team: Rob Maher and Veronique Larcher (papers), Joe Carter and Dave Harris (workshops), Conrad Cooke and Jim McTigue (tutorials and master classes), David Bialik (broadcast), and Bob Lee and Jonathan Novick (live sound).

A strong line up of papers from international authors included contributions on topics ranging from audio coding through psychoacoustics to forensic analysis. This was complemented by 15 workshops, which included *Audio Networking for the Pros*, chaired by Umberto Zanghieri, and *Revolt of the Mastering Engineers*, during which chair Paul Stubblebine and colleagues discussed why mastering engineers seem to be giving up their free time to start new ➡

AES 125th Convention

Platinum Events

Platinum Engineers and Producers: from left, moderator Paul Verna, Stephen Jenkins, Tony Berg, David Bowles, Jerry Harrison, and Chris Lord-Alge

Platinum Mastering: from left, moderator Bob Ludwig, Scott Hull, Herb Powers Jr., Bernie Grundman, and Doug Sax

Platinum Road Warriorss: from left, moderator Clive Young, Dave Skaff, Eddie Mapp, and Howard Page

labels based on obsolete technologies such as half-inch analog and vinyl and what this activity says about the current state of recorded music. A series of special broadcast sessions looked at topics such as facility design, loudness, mobile/handheld broadcasting, and quality monitoring for Internet streaming.

Twenty tutorials, presented over the four days of the convention, provided audio engineers with a chance to catch up on basic principles or to learn about emerging technologies that have crept up behind them while doing their day jobs. Some notable examples were the quirkily titled *How I Does Filters* by Peter Eastty, during which the veteran digital audio designer described ways in which he had built up a "cookbook" of filters and other signal processing blocks during his life, without resorting to loads of mathematics. Alex Case intrigued his audience with an attempt to demystify the science behind electric guitar miking, showing the variables that are likely to matter and describing some of the ways to achieve punch, crunch, and other tasty "unchs" in electric guitar tone.

Four master classes provided a platform for well-established experts to offer their wisdom to AES delegates. John Vanderkooy dealt with the basic acoustics of loudspeakers, and Bob Schulein gave a fascinating talk on binaural audio technology. Sonic methodology and mythology was the topic of a master class by Keith Johnson, AES Silver Medal recipient at the awards ceremony. In this master class he looked into matters such as whether power cords, interconnects, and marker dyes can improve audio quality, among other wide-ranging issues. John Dunec completed the line-up with a useful session on acoustics and multiphysics modeling.

A complete track was devoted to a series of 12 live sound seminars, one of the most active areas in professional audio. One of these, chaired by Tom Young, looked at the rapid change that has taken place in loudspeaker technology, much of it related to the use of computers as a design tool for modeling, measurements, and signal processing. There was also a session with useful advice for wireless system users, chaired by Karl Winkler, and a seminar on good microphone technique chaired by Dean Giavaras.

SPECIAL EVENTS

The Platinum Series, always popular at U.S. conventions, was coordinated in San Francisco by Paul Verna. On Friday, some of the industry's top producers and engineers discussed the routes that has led them to their careers in the studio, while on Saturday the Platinum Mastering panel chaired by Bob Ludwig discussed the craft and business of mastering. Platinum Road Warriors, moderated by Clive Young, covered the latest trends in sound reinforcement on Sunday morning.
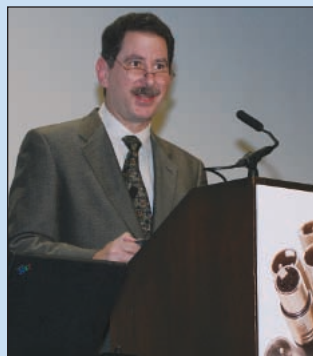
Chandra Lynn and Larry the O organized an extended program of special events, including one in which Geoff Emerick recounted the 40th anniversary rerecording on vintage equipment of the Beatles' *Sgt. Pepper's Lonely Hearts Club Band*. At the Grammy Soundtable, presented by NARAS and moderated by Mike Clink, heavyweight producers and engineers examined strategies for a new economy. In a another session, Fab Dupont moderated a discussion in which six of the audio industry's top designers reviewed the history, philosophy, and evolution of designing dynamic-range compressors. A fascinating lunchtime keynote address was presented on Friday by Dave Giovannoni. He described the recovery and restoration of a number of phonautograms made in Paris in 1860, which represent the world's first sound recordings. On Saturday Peter Gotcher delivered a second lunchtime keynote of special interest to audio entrepreneurs. He offered a high-level view of the changing business mod-

Geoff Emerick (left), engineer on the Beatles' ***Sgt. Pepper's Lonely Hearts Club Band***, discusses a 40th anniversary rerecording commissioned by the BBC with Peter Filleul.

Dave Giovannoni (left) and Peter Gotcher gave lunchtime keynote talks.

Participants in the Grammy Soundtable: from left, top row, Keith Olson, Sylvia Massy, Carmen Rizzo, and John Vanderslice; bottom row, James McKinney, Maureen Droney, Phil Ramone, and Mike Clink.

Heyser Lecturer Floyd Toole (right) receives certificate from Bob Schulein, Technical Council chair. Jürgen Herre (left) and Jim Kaiser, Technical Council vice chairs, also presented him a copy of the Heyser anthology.

els being deployed in the audio industry.

During Graham Blyth's traditional organ concert in the striking modern setting of St. Mary's Cathedral, the audience was treated to performances of Bach, Franck, and Vierne on the Ruffati organ built in 1971. The organ's visually arresting design of exposed pipes proved an ideal vehicle for Blyth's carefully chosen program that showed off the tone colors and dynamic range of this excellent instrument.

Celebrating the launch of his recent book on loudspeakers and rooms, published by Focal Press, Floyd Toole gave a substantial and typically provocative lecture in the Heyser Memorial Series entitled "Sound Reproduction: Where We Are and Where We Need to Go." During his talk he returned regularly to a quote from William Gibson, who had said "The future is here, it's just not widely distributed yet," to reinforce his thesis that we know much of what we need to know to create good reproduced sound already; however, it is often ignored in the design of audio systems. He said that it is unfortunate that frequently repeated misbeliefs and folk-

Participants in the historical event ***Perceptual Audio Coding—The First 20 Years***: from left, Louis Fielder, moderator Marina Bosi, Bernd Edler, Gerhard Stoll, John Princen, Jim Johnston, Karlheinz Brandenburg, and Ken Sugiyama.

AES COMMITTEE MEETINGS

1 Regions and Sections: Francis Rumsey, chair, addresses the large group

2 Historical: Bill Wray (left) and Gene Radzik, cochairs

3 Publications Policy: from left, Søren Bech (cochair), Josh Tidsbury, Louis Fielder, Rhonda Wilson, John Vanderkooy (editor), Nick Zacharov (cochair), and Steve Johnson (webmaster)

4 Conference Policy: Geoff Martin (left), chair, turns the reins over to Jan Pedersen, incoming chair

5 Technical Council: from left, Jim Kaiser and Jürgen Herre, vice chairs, and Bob Schulein, chair

6 Education Committee: from left, Dottie Kreps, Misato Yamada, José Leonardo Pupo, and Jason Corey (chair)

lore can have status and influence commensurate with scientific facts. We should do a better job of delivering recorded music.

TECHNICAL TOURS

The vibrant audio industry in the Bay Area provides numerous opportunities to see the workplaces of exceptional audio practioners. David Bowles arranged an enticing selection of tours. These included a visit to the San Francisco Conservatory of Music, together with a presentation on acoustical treatments by Kirkegaard Associates. A visit to the legendary Dolby Laboratories was high on the list for many delegates, as was a tour of the Sony Computer Entertainment facilities in Foster City.

HISTORICAL EVENTS

Under the careful oversight of Tamara Horacek, the historical program provided an opportunity to step back in time and hear about major developments in audio, such as the evolution of video game sound; delegates were able to find out about the changes that had taken place since the basic effects of Pong up to the multicore processing of modern consoles. Showing just how far things have come since audio coding was a novel topic, a special session charting the first 20 years of perceptual audio coding, chaired by Marina Bosi, found its place in the historical program. The

history of audio processing was reviewed by a panel of industry pioneers, moderated by Emil Torick. They looked back at live sound innovations with an emphasis on the needs and constraints that drove their development and adoption. For a complete postconvention program, go to <www.aes.org/events/125/125thWrapUp.pdf>. An order form for buying mp3s of most of the 125th sessions is enclosed with the hard copies of this issue, and you can order them online at <http://74.53.205.229/conference/Audio-Engineering-Society-125th-Convention/>.

STUDENT EVENTS

Students represent the next generation of professional audio engineers, and under the guidance of Teri Grossheim, Dottie Kreps, and Mark Swiderski the student events at the 125th Convention were memorable. These included meetings of the student delegate assembly (SDA), mentoring sessions during which students could meet with experienced professionals to obtain career guidance, and a workshop dealing with resume writing and other aspects of job hunting. Recording competitions enabled students to have their work judged by industry leaders. A student dinner gave students a chance to meet each other informally. The student paper award at this convention, chosen from 35 student papers, was won by Alastair Moore of York University for his paper "An Initial Validation of Individualized Crosstalk Cancellation

EDUCATION EVENTS

1. Education Fair: Ex'pression College for Digital Arts was one of the schools offering information.
2. Education Forum participants: from left, Jason Corey, Steven Bellamy, John Krivit, and S. Benjamin Kanters
3. Student recording competition: world/folk judges, from left, Paul Stubblebine, Bob Ludwig, and Bob Katz.
4. Recording competition awards: Nathan Chandler (center), 1st Place Classical Surround, was among the many winners; he received prizes from Christan Legan (left), and a certificate from Jason Corey.
5. SDA elections: from left, José Leonardo Pupo, SDA chair for North and South America, Meiling Loo, newly elected SDA vice chair for North and South America, Jason Corey, Misato Yamada, SDA international chair, and Dottie Kreps

Filters for Binaural Perceptual Experiments." You can find more information about student events in Education News, starting on page 1136.

BEHIND THE SCENES

Behind the scenes at AES conventions, numerous professional and committee meetings are taking place, at which the main business of the Society is discussed and planned. These include standards meetings, coordinated by Richard Chalmers, Standards Committee chair, and Mark Yonge, standards manager. Bob Schulein, Technical Council chair, coordinates the meetings of the 22 Technical Committees, which assess and monitor the fields of endeavor that make up audio engineering. Many of the AES committees also met during the convention, including the Regions and Sections Committee, attended by section officers from around the world. The Board of Governors met (see next page) on the evening of the last day of the convention, during which the Society's future policies were reviewed.

A report of this convention would not be complete without mention of the sterling efforts of Bob Megantz, facilities chair, who worked tirelessly to ensure that the needs of presenters were attended to, ensuring that the technical program proceeded smoothly and without difficulties.

The overall impression delivered by the 125th Convention was that the industry is adapting remarkably well to changing times, keenly intent to make the most of new business opportunities and new technologies. It was a tribute to the strength, resilience, and ingenuity of the thousands of audio professionals who make their living in the diverse fields that constitute the worldwide audio industry. Preparation are well underway for the 2009 conventions: the 126th in Munich, May 7–10, and the 127th in New York, October 9–12. See www.aes.org for the latest news and updates.
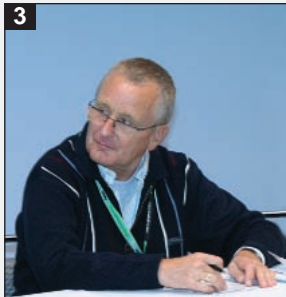
Board of Governors Meets

The AES Board of Governors met on October 5 to hear reports from AES officials and standing committees:

1 Ron Streicher, governor and Laws & Resolutions Committee chair; Neil Gilchrist, governor, Awards Committee chair, and Strategic Advisory Group chair; Bill Wray, Historical Committee cochair

2 Bob Moses, president and incoming Nominations Committee chair; Han Tendeloo, secretary and incoming Strategic Advisory Group chair; Bob Lee, USA/Canada Western Region vice president and incoming secretary

3 Diemer de Vries, incoming president-elect and Laws and Resolutions Committee cochair

4 Jason Corey, Education Committee chair; Geoff Martin, Conference Policy Committee chair

5 John Vanderkooy, editor; Jay Fouts, legal counsel

6 Christopher Struck, governor; Mark Yonge, standards manager; Jim Kaiser, USA/Canada Central Region vice president

7 Andres Mayo, Latin American Region vice president; Bozena Kostek, governor

8 Jim Anderson, president-elect, incoming president, and incoming Convention Policy Committee chair; Louis Fielder, treasurer and Finance Committee chair; Garry Margolis, incoming treasurer-elect

9 Michael Fleming, incoming governor; Peter Cook, USA/Canada Eastern Region vice president

10 Francis Rumsey, Regions and Section Committee chair

11 Nick Zacharov, Publications Policy Committee cochair

12 Antonio de Oliveira, Europe Southern Region vice president

13 Wieslaw Woszczyk, past president and Nominations Committee chair; David Murphy, International Region vice president;

14 Student representatives: Misato Yamada, Teri Grossheim, and José Leonardo Pupo

15 Gene Radzik, Historical Committee cochair; Karlheinz Brandenburg, governor

16 Durand Begault, incoming governor

17 John Strawn, Convention Policy Committee chair and 125th Convention cochair

18 Roger Furness, executive director; Theresa Leonard, governor and Membership Committee chair; David Bowles, incoming governor

19 Peter Swarte, Europe Northern Region vice president; Bob Schulein, Technical Council chair

20 Kimio Hamasaki, governor

21 Jan Pedersen, incoming Europe Northern Region vice president and Conference Policy Committee chair; Søren Bech, Publications Policy Committee cochair

22 Ewald Kerschbaum, Europe Central Region vice president; Chris Freitag, Tellers Committee chair; Dottie Kreps, governor