

# AES 121<sup>st</sup> CONVENTION

2006 October 5–8

Moscone Convention Center  
San Francisco, California



## INTRODUCTION

By popular request, the Audio Engineering Society returned to San Francisco in October for its 121st Convention—almost certainly the most comprehensive ever held in the history of the Society. John Strawn, convention chair, together with his energetic and dedicated committee, put together a program to beat all programs, including 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 AND AWARDS CEREMONY

AES Executive Director Roger Furness opened the convention, noting that this was the most extensive convention ever staged, with a four-day technical program and a three-day exhibit program. Neil Gilchrist, AES president, welcomed delegates and thanked John Strawn and his committee for putting together a truly excellent program. He introduced Strawn and his extensive committee (see group photo at the bottom of this page), who joined him on the stage to receive a hearty round of applause from



the assembled company. Strawn explained that they had met together for a whole day once a month for the past year, and many thousands of emails had been exchanged in the preparation for this convention. Strawn pointed out that events for recording engineers had been expanded, as had those aimed at people involved in audio software and hardware. Student career-development events were also substantially increased in the program.

Ron Streicher, chair of the Awards Committee, then introduced those who would receive awards. John Vanderkooy, editor of the *Journal*, announced the Publications Award given to Gilbert Soulodre, Scott Norcross, and Michel Lavoie for their paper, "Objective Measures of Listener

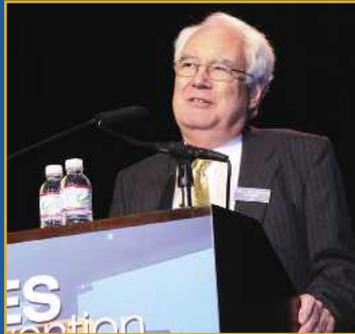
Envelopment in Multichannel Audio Systems (*JAES* September 2003). A citation was given to Mercedes Onorato in recognition of her extraordinary efforts in developing the Latin American region. Board of Governors Awards were given to Jim Anderson for chairing the 119th Convention in New York and Roy Pritts for chairing the 26th International Conference in Denver. Fellowship Awards went to Jim Anderson for service to the Society, education, and excellence in sound recording; John Chester for dedicated service to the Society for many years; Kevin Gross for his contributions to high-quality audio networking; and Rupert Neve for his significant contributions to audio designs and mixing consoles over many years. ▶



# Opening Ceremonies and Awards



Roger Furness,  
AES executive director



Neil Gilchrist, AES president



John Strawn, convention chair

Robert Scovill,  
keynote  
speaker at  
the opening  
ceremonies



The prestigious Silver Medal Award was given to Tomlinson Holman for more than three decades of work in the advancement of audio electronics, multichannel sound techniques, and motion picture sound production and reproduction standards, and to John Hall for nearly 40 years of innovative work in the development of phonograph and tape recording and reproduction equipment, stereophonic technology, mixing consoles, and signal processing equipment. The Distinguished Service Award was given to Marshall Buck for more than 25 years of service to the Society.

John Strawn then introduced the keynote speaker, Robert Scovill, a 27-year veteran of professional concert sound and recording who has mixed over 3,000 events in his career. He spoke about the thrill live sound mixers get during those special moments when the performers, crowd, music, and ambience of the physical setting crystallize into a transcen-

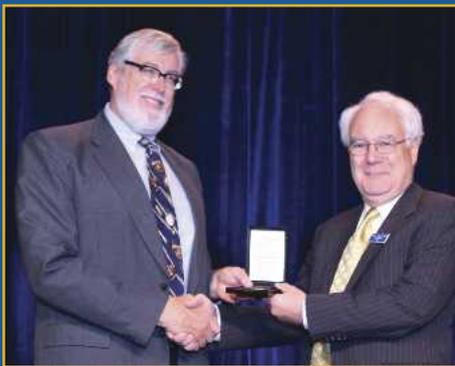
dent event. Scovill believes that studio recordings or 5.1 audio in the home can never quite recreate the excitement of the live sound experience. There has been a revolution in loudspeaker array technology that has transformed live sound. The acceptance of line source designs has led to a step change in the quality and intelligibility of performances, and audiences at live events have been enthusiastic in their approval of these improvements. The scientific expertise and detailed calculations that regularly go into the setup of modern sound reinforcement systems are staggeringly different from the informal approaches of the past. Scovill also spoke strongly in favor of rigorous education programs concentrating on live sound engineering. He said that churches have presented some of the most challenging situations for sound reinforcement. An unsatisfactory mixture of architecture and loudspeakers had been evident in



From left, Scott Norcross, Michel Lavoie, and Gilbert Soulodre receive the Publications Award from Editor John Vanderkooy and Neil Gilchrist



Silver Medal Award recipients: top, Tomlinson Holman; above, Ron Streicher accepts for John Hall



Marshall Buck receives Distinguished Service Award



Board of Governors Award recipients: Jim Anderson (top) and Roy Pritts



Ron Streicher, Awards Committee chair



Mercedes Onorato receives Citation Award



Fellowship Award recipients: clockwise from top left, Kevin Gross, Jim Anderson, John Chester, and Rupert Neve



Speaking at the AES annual business meeting: clockwise from top left, Roger Furness, executive director; Neil Gilchrist, president; Han Tendeloo, secretary; Chris Freitag, Tellers chair, and Louis Fielder, treasurer.

many instances in the past. Modern houses of worship have very demanding audio requirements, and this is now a huge segment of the sound reinforcement market in the U.S., which boasts 400,000 churches. Audio has to support such worship rather than detract from it. Sound reinforcement, he believes, is just now coming of age. It must always strive to serve the art it attempts to deliver.

## EXHIBITION

A sold-out hall of more than 420 exhibitors thronged with people eager to see the latest developments in audio technology. Among these



Rob Maher (left), papers cochair, presents a certificate to Arijit Biswas for the best convention paper written by a student.

was an emphasis on loudspeaker technology with integrated digital signal processing. Genelec, for example, was introducing its 8200 and 7200 Series monitors that include both signal processing and the Genelec Loudspeaker Management software. The latter enables up to 25 loudspeakers and five subwoofers to be configured on a CAT5 network using either Mac or Windows controllers. EAW was showing a new digital processor designed to work with the company's KF760 and 730 line array loudspeakers, enabling Gunness Focusing to be employed to correct for common problems with horn-loaded arrays.



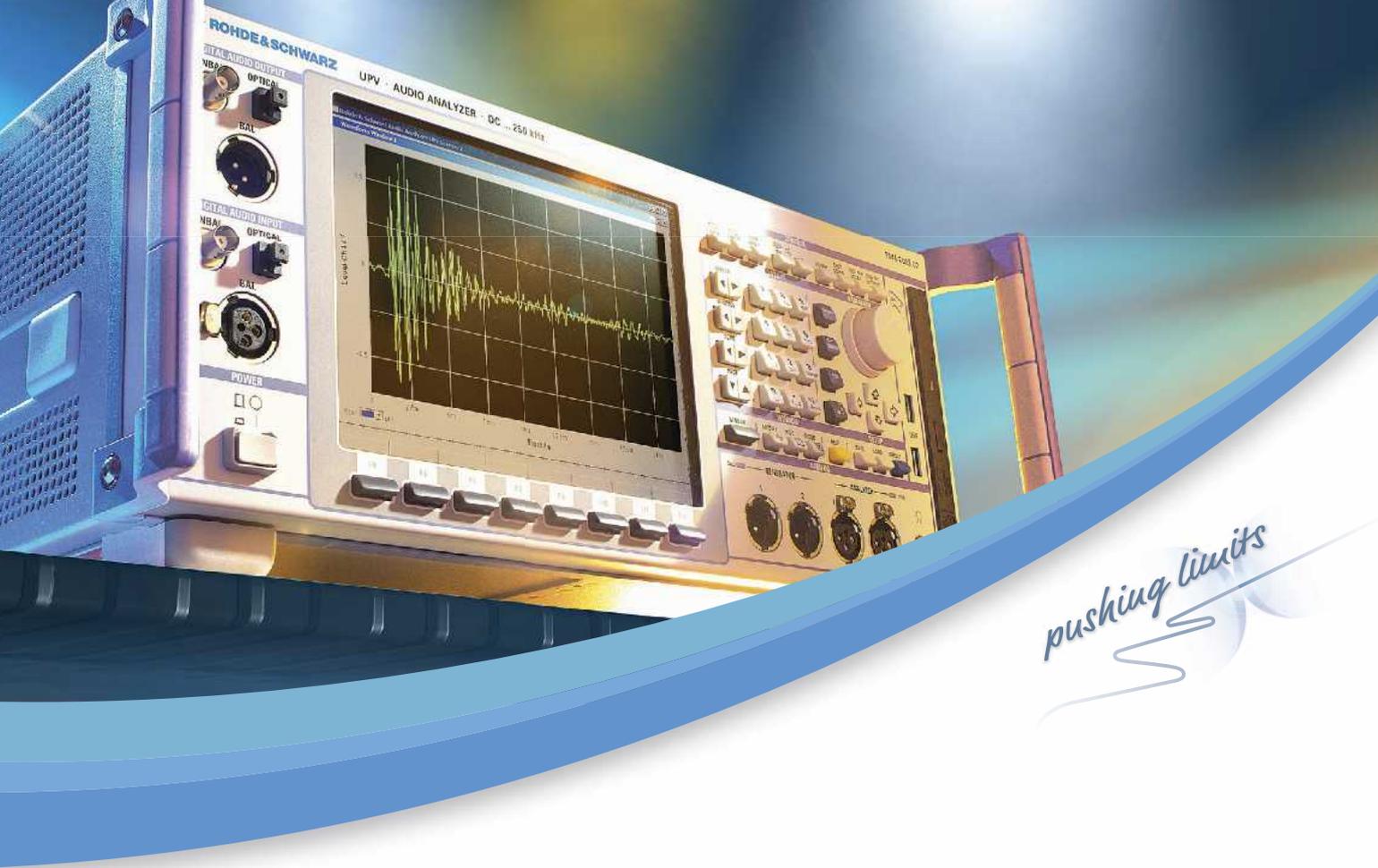
Poster presentations allow authors to provide additional information to visitors by means of laptop demos.

Integrating the analog and digital worlds, M-Audio launched its NRV10 analog mixer, which has a FireWire port to connect it to a computer. This mixer then appears to the computer as a 10x10 digital interface, which is also an eight-into-two analog mixer. Adding to the line-up of FireWire audio interfaces, so popular in the computer-based digital studio, was Focusrite's Saffire PRO 26i/o, which offers a total of 26 inputs and outputs including eight mic pre-amps based on the award-winning Green series. In similar vein is PreSonus's Firestudio interface, operating at 24 bit/96 kHz and including a 36x18 mixer and router package for the computer.

Plug-in technology for computer-based workstations continues to develop apace, with Waves introducing the V-Series plug-ins designed to model classic British analog audio components. These include a compressor/limiter, a



Many of the 121st technical paper sessions were standing-room-only events (right). Authors (clockwise from far left) Jamie Angus, Jan Abildgaard Pedersen, John Usher, and Stefan Feistel were among the authors giving lecture presentations.



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Four of the “masters” giving master classes at the 121st: clockwise from top left, Bill Whitlock, Henry Ott, Robert Pease, and Roger Nichols.

in the line-up of products at this convention. Holophone presented its new portable surround mic, the H4 Super-MINI, designed to be mounted on a camera for broadcast sound capture in the HD video environment. HHB’s FlashMic, on the other hand, is the world’s first digital recording microphone that records directly onto a flash memory card housed in the microphone; its intended use is for electronic news gathering. Neumann’s well known KM series of microphones has been given digital insides in three new models that have

4-band equalizer, and a 3-band EQ, developed by analyzing analog modules that hale from the 1970s. SSL also showed its LMC-1 Listen Mic Compressor, which has had over 25,000 free downloads since it was introduced a year ago and received a TEC nomination recently. Staying firmly in the analog domain, on the other hand, SSL showed two new additions to its X-Rack modular mixing environment: the Four Channel Input and the Master Bus summing, metering, and control room module. The X-Bus system is intended to bring SSL technology into the realm of the project studio.

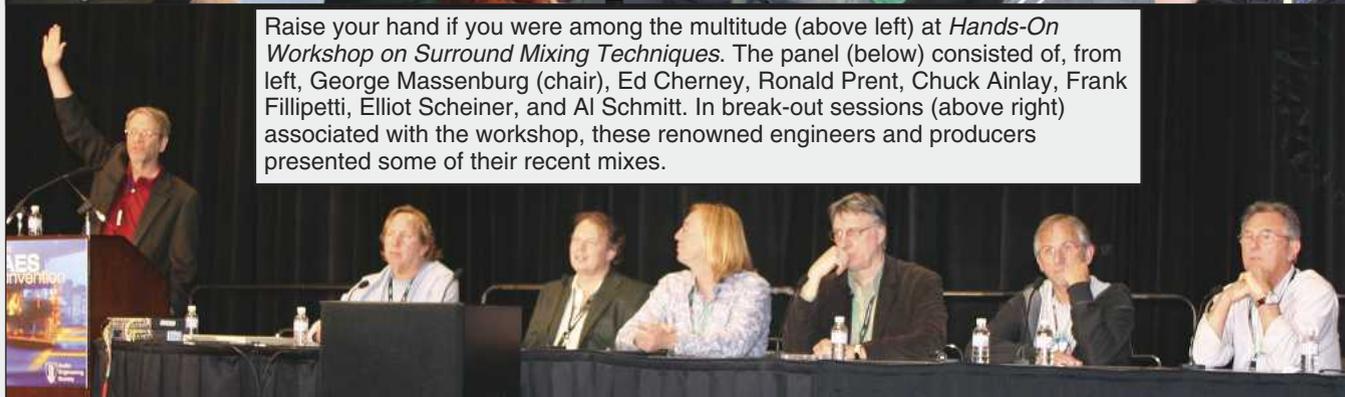
Microphones, both modern and retro, were a large segment

an A/D convertor right next to the capsule, together with sophisticated digital signal processing including a de-esser and compressor/limiter. These microphones include support for up to 192-kHz sampling and can use AES11 synchronization. Taking up the retro or vintage banner, M-Audio also introduced its Sputnik hand-assembled condenser tube microphone, which uses a large diaphragm capsule switchable between cardioid, omni, and figure-eight patterns.

Alongside the exhibition, a series of exhibitor seminars was provided so that delegates could learn about detailed aspects of products and systems. These included offerings by Digidesign, Rhode & Schwarz, and Renkus-Heinz. ➔



Raise your hand if you were among the multitude (above left) at *Hands-On Workshop on Surround Mixing Techniques*. The panel (below) consisted of, from left, George Massenburg (chair), Ed Cherney, Ronald Prent, Chuck Ainlay, Frank Fillipetti, Elliot Scheiner, and Al Schmitt. In break-out sessions (above right) associated with the workshop, these renowned engineers and producers presented some of their recent mixes.





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John Strawn (right), convention chair, with Tad Rollow



Rob Maher (right), papers cochair, with Brett Crockett



Christopher Struck (left), papers cochair, with Eric Benjamin



Jim McTigue, technical tours chair



Bob Moses, master classes chair and tutorials cochair



From left, Bob Megantz, facilities chair, David Bialik, broadcast events chair, and Valerie Tyler, tutorials cochair



Larry the O, live sound events chair



Josh Tidsbury, student/career events cochair

Dottie Kreps, student/career events cochair, and Bob Lee, workshops cochair



Historical events committee: from left, Larry Miller, Bill Wray (chair), Gene Radzik, Steve Fields, and Jay McKnight. Steve Williams missed this photo.



## TECHNICAL PROGRAM

A packed technical program provided something for everybody, no matter what walk of audio life they follow. Of particular interest at the 121st Convention was the decision to provide a track for electrical engineers, including tutorials and master classes. One such event was “What’s All This Analog Stuff Anyway?” featuring analog guru Robert Pease of National Semiconductor. He specializes in the analog design of audio equipment and offered guidance on aspects of circuitry, components, and layout. This was neatly complemented by Henry Ott’s “Partitioning and Layout of a Mixed Signal PCB,” which concentrated on the problem of controlling noise on circuit boards handling both analog and digital signals. There were also master classes and tutorials on audio data com-

pression, grounding and shielding, and balanced interfaces.

A similarly specialized track developed by David Bialik was provided for broadcasters, with events on topics of current interest. These included the problems of lip sync in HDTV and a session on innovations in digital radio, as well as two sessions dealing with the subject of surround sound for radio broadcasting. New broadcasting technology and the use of alternative media were covered in some detail, including the session “Broadcasting in the IP Age,” chaired by David Layer of the NAB. This session introduced some of the issues arising from the wide use of computers in broadcasting and the listener’s home. Skip Pizzi chaired a session dealing with the transport of audio over phone networks, the Internet, and satellite networks, demonstrating the wide range of ways in which audio sig-



David Harris, workshops cochair



Veronique Larcher, special events chair



Bob Schulein, Technical Council liaison, with Amy Heyser



Han Tendeloo, program coordinator

## We Thank...

### 121st Convention Committee

**John Strawn**  
chair

<p><b>Rob Maher and Christopher Struck</b> papers cochairs</p> <p><b>David Harris and Bob Lee</b> workshops cochairs</p> <p><b>Bob Moses</b> master classes chair and tutorials cochair</p> <p><b>Valerie Tyler</b> tutorials cochair</p> <p><b>Larry the O</b> live sound events chair</p> <p><b>David Bialik</b> broadcast events chair</p> <p><b>Veronique Larcher</b> special events chair</p>	<p><b>Bob Megantz</b> facilities chair</p> <p><b>Dottie Kreps and Josh Tidsbury</b> student/career events cochairs</p> <p><b>Jim McTigue</b> technical tours chair</p> <p><b>Bill Wray</b> historical events chair</p> <p><b>Joe Alexander</b> volunteers coordinator</p> <p><b>Bob Schulein</b> Technical Council liaison</p> <p><b>Han Tendeloo</b> program coordinator</p>
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Joe Alexander (2nd from left), volunteers coordinator, with three of his crew

nals from widely dispersed locations are fed to broadcast facilities before being broadcast to the public or subscribers.

Larry the O put together a comprehensive program of seminars for live sound engineers, with an emphasis on the design and business aspects of touring systems. A session on wireless microphone issues, chaired by James Stoffo, addressed some recent complications introduced by new FCC frequency-allocation rules. Other seminars addressed electroacoustic enhancement systems together with studies of digital audio networking and control for fixed and touring installations.

In addition to these specialized tracks, 25 tutorials, coordinated by Bob Moses and Valerie Tyler, were offered, covering subjects as diverse as embedded DSP systems and "The Grand Story of Musical Scales." These tutorials, gen-

erally offered by one or two key experts in the field, are designed to give delegates a chance to find out about the basics of particular technologies or subject areas, either to refresh their jaded memories or to discover something new. In the practical vein, for example, for a limited number of delegates who wanted a hands-on recording experience, Ron Streicher led a tutorial on the recording of Graham Blyth's organ recital, which took place in a local church. Among the additional master classes organized by Bob Moses was one by the ever-popular Floyd Toole who presented an updated version of his loudspeakers and rooms master class.

A program of 19 workshops, organized by David Harris and Bob Lee, were full to bursting. An extremely popular hands-on workshop on surround mixing techniques was run by George Massenburg. Together with panelists Ed Cher-

## Platinum Events



Platinum Mastering: from left, moderator Bob Ludwig, Adam Ayan, Darcy Proper, Stephen Marcussen, Brian “Big Bass” Gardner, and Herb Powers, Jr.



Platinum Engineers: from left, moderator Jack Joseph Puig, Al Schmitt, Dave Pensado, Tal Herzberg, and Allen Sides



Platinum Producers: from left, moderator Ron Fair, Eric Valentine, Jack Joseph Puig, Martin Kierszenbaum, and Derryck “Big Tank” Thornton



An Afternoon with George Massenburg: George Massenburg, left, and Howard Massey, moderator



Grammy Soundtable: from left, Glenn Lorbecki, Ed Cherny, Maureen Droney, Jim Gaines, Steve Miller, Michael Fusaro, Neil Portnow, and Glenn Lorbecki

ney, Ronald Prent, Chuck Ainlay, Frank Fillipetti, Elliot Scheiner and Al Schmitt, Massenburg showed delegates practical techniques for mixing surround. This was complemented by another convention “first,” a separate surround mixing room in which a limited number of delegates could hear mixes and a discussion of how they were engineered. Continuing the surround theme was a workshop on surround with height, chaired by Kimio Hamasaki, and a tutorial on the principles of ambisonics given by Dave Malham and Eric Benjamin. After these two sessions, delegates were able to experience full periphonic and other surround with height demonstrations at the Recombinant Media Labs,

which was a short bus ride from the convention center.

A comprehensive program of technical papers was coordinated by Rob Maher and Christopher Struck, papers cochairs, including a number of poster sessions. Of particular interest was a paper by Stanley Lipshitz and Cameron Christou, entitled “Picturing Dither: Dithering Pictures,” in which the parallels between the effects of dither on pictures and audio were examined. Lipshitz discussed how similar patterns can be observed on still pictures in the spatial domain as can be heard in the time domain with audio. Noise shaping on pictures is possible in a similar manner using psychovisual curves instead of psychoacoustic curves.

A full listing of the entire 121st program starts on page 1241. A complete list of 121st papers is listed on the order form inserted with this issue; and papers can be purchased online at [www.aes.org/publications/preprints](http://www.aes.org/publications/preprints). Audio recordings of most of the 121st sessions are listed on another form inserted with this issue, and MP3 CDs or audio CDs can also be purchased online at [www.mobiltape.com](http://www.mobiltape.com).

As part of the papers program at the 121st Convention, Maher and Struck administered a student paper award competition based on the preprint manuscripts received from 28 student authors. The winning entry was “Perceptually Biased Linear Prediction” (paper 6870) by Arijit Biswas and Albertus den Brinker (see photo on page 1222). The technical merit of this paper was recognized with publication in this issue (see page 1179).

### SPECIAL EVENTS

A strong program of special events was organized by Veronique Larcher. One day prior to the main convention, Fred Ampel chaired *Surround Live IV*, a live sound seminar looking at the explosion of high definition sports programming. Broadcasters are rushing to “put the audience at home in the game,” based on a huge increase in HD sports programming and consumers ability to receive and decode multichannel digital audio. This event concluded with a special



San Francisco Studio History: from left, moderator Heather Johnson, Dan Alexander, Fred Catero, Tom Flye, Pat Gleeson, Jack Leahy, Leslie Ann Jones, and Tom Scott



Heyser Lecturer Julius O. Smith III (2nd from left) receives certificate from Jürgen Herre, Technical Council vice chair, Bob Schulein (right), Technical Council chair, and Markus Erne (left), vice chair.



Group shot of participants in the technical tour of Fantasy Studios

recital by Robert Gurney, who played the 1909 Austin Pipe organ housed at the Regency Center's Lodge Ballroom where the live sound seminar was staged. Two days later during the convention this seminar was complemented by the special event, Platinum Road Warriors, chaired by Clive Young of ProSound News, in which a panel of touring professionals covered the latest trends, techniques, and tools that shape modern sound reinforcement.

Another organ recital was given a few days later when Graham Blyth gave his now-traditional AES recital, this time on the magnificent Skinner organ at San Francisco's Trinity Episcopal Church. Demonstrating the vibrant orchestral sounds of the instrument, Blyth played works including Whitlock's "Fanfare," Franck's "Cantabile," and Thalben-Ball's "Elegy" to a delighted audience.

A pair of events was organized especially for the Latin American community, including a session on low-frequency directional control in sound reinforcement and another on the topic of mixing and mastering for multi-channel audio. The first of these was given by panelists Salvador Castañeda and Franklim Garrido, while the second was offered by Andres Mayo (currently AES Vice President for Latin America), Mintel Alonso Miranda, and Roberto Muñoz Soto. This resurrected a successful concept from the 1990s.

The Technical Council organized another successful Heyser Memorial Lecture at the 121st Convention, given on this occasion by Julius O. Smith III, famous for his work on sound synthesis at the Center for Computer Research in Music and Acoustics (CCRMA) at Stanford University.



Digidesign was one of 11 companies that offered attendees additional product information in an exhibitor seminar.

Smith gave a whistle-stop tour of the history of synthesis methods, together with audio examples of some of the key innovations. He finished with a look at physical modeling synthesis, a topic that he discussed in greater detail during a master class later in the convention.

Recording engineers were spoiled for choice in San Francisco, with a series of events including Platinum Mastering chaired by Bob Ludwig on Saturday. Ludwig hosted a panel of top mastering engineers who talked about the ways in which their jobs were changing in today's iPod-inspired market. "Is high resolution audio still viable?" Ludwig asked. This was complemented ➡

## AES COMMITTEE MEETINGS

- 1 Conference Policy: from left, Subir Pramanik (chair), Ron Streicher, Florian Camerer, Tim Nind, and Roger Furness
- 2 Publications Policy: from left, Bozena Kostek, Søren Bech (chair), and Geoff Martin
- 3 Historical: from left, John Chester, Jay McKnight (chair), and David Bialik
- 4 Regions and Sections: Wieslaw Woszczyk (president-elect), Theresa Leonard (past-president), and Roy Pritts (chair)
- 5 Technical Council: George Massenburg, Jürgen Herre (vice chair), and Bob Schulein, (chair)
- 6 Education Committee: from left, Dottie Kreps, Josh Tidsbury, and Jason Corey (chair)
- 7 Standards: Mark Yonge (manager) and Richard Chalmers (chair)



by the 18th Annual Grammy Recording Soundtable, which celebrated the 30th anniversary of *Fly Like an Eagle* by the Steve Miller Band and the release of the CD/DVD in 5.1 surround. Michael Molenda moderated the panel, which consisted of Ed Cherney, Michael Fusaro, Jim Gaines, and Steve Miller himself.

Other special events included Platinum Engineers, Platinum Producers, and An Afternoon with George Massenburg, moderated by Howard Massey. Massenburg ranged widely over topics from “why is the audio industry going down the tubes and what can we do to save it” to “why digital sucked and why it doesn’t suck any more.”

A group of AES delegates witnessed history when they visited Lucasfilm’s new Letterman Digital Arts Center in the Presidio area of San Francisco on the last afternoon of the convention. They saw the first example of extreme media collaboration on CineGrid, a virtual high-speed network linking research centers in Japan and the U.S. that can synchronize superhigh-definition 4K digital cinema with uncompressed, multichannel digital audio. The video signal from Japan was transmitted using JPEG2000 compression at 500 Mbit/s over a gigabit network link, synchronized to a server playing out multichannel audio from a center elsewhere in California. This was then mixed and viewed live in the theater at Lucasfilm, to the astonishment of delegates. Academics from a Tokyo university appeared on screen in

superhigh resolution, talking with presenters from San Francisco in an impressive transworld collaboration. Engineers from Lucasfilm played extracts from Star Wars Episode III, *Revenge of the Sith*, to demonstrate the potential for remote audio and video contributions. The event was an opportunity to view the cinema of the future and to experience the quality and brightness offered by Sony’s latest 4K digital projector.

## STUDENT EVENTS

Dottie Kreps and Josh Tidsbury, student/career events cochairs put together an outstanding program of student activities, with a strong emphasis on career options and mentoring. The opportunity was provided, for example, for students to sign up for a one-on-one mentoring session with a distinguished member of the audio community. Further events aimed at career guidance included “Should I Go to Graduate School?” chaired by Rob Maher, “Inside the Job Interview,” moderated by John Strawn, a career fair, and a resume review session. There were also a number of competitions including a surround and stereo recording competition with different categories such as classical, jazz/blues, and pop/rock, and a design competition for audio projects developed by students. The education fair provided an opportunity to find out about the range of courses available around the world, and the student delegate assembly met on two occasions to plan events and elect officers. (See Education News on page 1314.)



## EDUCATION EVENTS

1. Student recording competition: jazz/blues judges, from left, Steve Bellamy, Jim Anderson, and Leslie Ann Jones listen to presentation by Tim Gowdy.
2. Career Forum
3. Education Forum
4. Design Competition: Turner Kirk's presentation included a little reel on the bagpipes, enjoyed by the audience and judges, from left, John La Grou, David Josephson, and Dan Lavry.
5. Recording competition awards presentations: 1st Place winners in jazz/blues, Volker Werner (2nd from left) and Frederic Couson (3rd from left), received prize of MW12 USB Mixing Studio from Yamaha. They are flanked by Josh Tidsbury (left) and Daniel Orejuela.



## TECHNICAL TOURS

A line-up of 15 technical tours was assembled by Jim McTigue. Delegates could sign up for visits to Meyer Sound, Altera, Dolby Laboratories, Louise M. Davies Symphony Hall, Current TV, Pyramind, CCRMA at Stanford University, and Industrial Light and Magic. There were also a number of tours arranged to studios such as Fantasy Studios/Ex'pression College of Digital Arts, Plant Studios in Sausalito, and Talking House Productions, San Francisco's newest major studio complex.

## HISTORICAL PROGRAM

It was also possible to step back in time for a few moments, to witness the comprehensive program of events prepared by Bill Wray and his historical events committee. Attendees could hear about stereo optical film sound tracks from Ioan Allen of Dolby Laboratories, at a theater near the convention center. Allen demonstrated the evolution of stereo film sound tracks from Blumlein's early experiments right through to today's digital systems, together with examples of historical footage. Kevin Ryan moderated "The Abbey Road Sound—75 Years in the Making." Heather Johnson moderated a session on the history of San Francisco's studios. There were also events on disc cutting, digital restoration, evolution of the broadcast audio chain, and a documentary film about Jack Mullin.

## AES MEETINGS

Throughout the convention a comprehensive program of AES committee and standards meetings took place. Richard Chalmers, Standards Committee chair, and Mark Yonge, manager, organized meetings on topics as diverse as digital audio, preservation and restoration, acoustics, interconnections, networks, and file transfer. A similarly broad spectrum of topics was represented in the numerous technical committee meetings that took place during the convention, planning future AES events and publications and plotting technology trends in their specialist areas.

The AES annual business meeting preceded the convention, at which it was announced that the membership of the Society had reached its highest ever level of around 13,000 members. At the Board of Governors meeting (see next page) the day after the convention, representatives from around the world debated the future policies of the Society.

The AES 121st Convention, which coincided with San Francisco's Fleet Week, "soared high and flew with the precision" of the U.S. Navy's Blue Angels, who showcased their high-performance aerial maneuvers throughout the convention. Plans are underway to reach even higher levels at next year's conventions in Vienna (May 5–8) and New York (October 5–8).



## Board of Governors Meets

The AES Board of Governors met on October 9 to hear reports from AES officials and standing committees:

- |   |  |
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| <p><b>1</b> Jay Fouts, legal counsel; Bob Moses, USA/Canada Western Region vice president and incoming president-elect; John Strawn, governor, Convention Policy Committee chair, and 121st Convention chair</p> <p><b>2</b> Theresa Leonard, past president and Nominations Committee chair; Peter Cook, incoming USA/Canada Eastern Region vice president; Jim Anderson, USA/Canada Eastern Region vice president</p> <p><b>3</b> Bozena Kostek, Europe Central Region vice president; Ivan Stamac, Europe Southern Region vice president;</p> <p><b>4</b> Wieslaw Woszczyk, president-elect and Laws and Resolutions Committee chair; Han Tendeloo, secretary</p> <p><b>5</b> Neil Gilchrist, president</p> <p><b>6</b> Søren Bech, Europe Northern Region vice president and Publications Policy Committee chair; Nick Zacharov, Strategic Advisory Group chair; David Murphy, International Region vice president</p> <p><b>7</b> Roger Furness, executive director; Christopher Freitag, Tellers Committee chair</p> <p><b>8</b> Jason Corey, Education Committee chair</p> <p><b>9</b> Ainslie Harris, student representative; Dottie Kreps,</p> | <p>incoming governor; Josh Tidsbury, student representative</p> <p><b>10</b> Ron Streicher, governor and Awards Committee chair; John Vanderkooy, editor and governor</p> <p><b>11</b> Louis Fielder, treasurer and Finance Committee chair; Jay McKnight, Historical Committee chair</p> <p><b>12</b> Andres Mayo, Latin American Region vice president; Ulrike Schwarz, governor</p> <p><b>13</b> Subir Pramanik, Conference Policy Committee chair; Francis Rumsey, Membership Committee chair</p> <p><b>14</b> Kimio Hamasaki, incoming governor; Christopher Struck, incoming governor</p> <p><b>15</b> Daniel Orejuela, student representative</p> <p><b>16</b> Jim Kaiser, USA/Canada Central Region vice president; Bob Lee, incoming USA/Canada Western Region vice president</p> <p><b>17</b> Steven Harris, governor; Kees Immink, governor</p> <p><b>18</b> Roy Pritts, Regions and Sections Committee chair; Richard Chalmers, Standards Committee chair</p> <p><b>19</b> Ronald Aarts, governor; Mercedes Onorato, governor</p> <p><b>20</b> Bob Schulein, Technical Council chair</p> |
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