

# 134<sup>TH</sup> AES CONVENTION

Fontana di Trevi  
Conference Centre  
Rome, Italy

May 4–7, 2013







## CONVENTION REPORT

Close to the Trevi Fountain, in the heart of Rome, the **Fontana di Trevi** conference center welcomed delegates from around the world for the Society's 134th Convention. Sponsored by a number of local and international audio companies, and under the outstanding chairmanship of Umberto Zanghieri (AES VP for Southern Europe), the convention emphasized important current themes in the fast-moving world of audio engineering. Located in the historic heart of the city, the conference venue offered easy access to Rome's great cultural and historical sites, providing delegates with the chance to take in the atmosphere of this ancient place and perhaps extend their stay to take a short holiday in the Eternal City.

The convention program was structured to emphasize the five topical tracks of recording, live sound, loudness, spatial sound, and sound for pictures. "Our 134th Convention exceeded expectations in every way," reported Bob Moses, AES executive director.





“Our four-day program of over 150 workshops, tutorials, and round table discussions on digital cinema, loudness, spatial audio, and other timely topics packed our presentation rooms. In addition to a solid pro industry turnout, we attracted many enthusiastic students whose quest for information and mentors was palpable. Our sponsors were uniformly pleased with the new customers in attendance throughout the Convention. I feel confident that we are on a good path in Europe and look forward to expanding this new AES model in future years,” Moses added.

## OPENING CEREMONY

Welcoming the large group of audio pilgrims to Rome, Bob Moses proposed that coming to the city was “a real treat” and warmly thanked the people instrumental in making the convention happen. In addition to the headquarters staff and convention committee, he particularly thanked his colleague and mentor, Roger Furness, whose support he greatly appreciated. Moses singled out Umberto Zanghieri for the “vast amount of work” he had expended in putting the event together. He hoped that the results would serve the audience well, thanked everyone for coming, and recommended the latest AES mobile app for iPhone that offered an interactive guide to the show.

Frank Wells, AES president, echoed Bob’s welcome to the convention—the first ever in Italy—where such rich history surrounded the event. Cutting-edge techniques that would appear in the products of tomorrow would be discussed here, he promised. He also extolled the energetic student body taking part in the event, which will form the next generation of our industry and Society. Particular thanks were offered to the 22 sponsors that had supported the event, to Bob Moses, and to the “hero of the convention,” Umberto Zanghieri, who then took the stage.

Offering a personal welcome to his home city, Zanghieri explained that the current season in May was one of the most charming times to visit. His committee had worked tirelessly to assemble the program and its supporting facilities, and RCF and Lambda Audio had helped by providing equipment.

## AWARDS

Jim Kaiser, a past president of the Society and chair of the Awards Committee, rose to announce the awards to those being recognized for their outstanding contributions in recent years. The Bronze Medal was given to Bob Schulein in recognition of his outstanding service in the advancement of the Audio Engineering Society sustained over a period of more than 40 years. Fellowship Awards were presented to Zbigniew Kulka, for his outstanding contributions to audio technology education, his scientific achievements in audio converter technology, and his work for the AES Polish Section, and to Lauri Savioja in recognition of his contributions to virtual acoustics and parallel computing in audio. A Citation was offered to Umberto Zanghieri in recognition of the great work he has done for the Italian Section of the AES and for his dedication and commitment to the growth of its community.



Bob Moses



Frank Wells



Umberto Zanghieri

The winner of the 134th Convention best peer-reviewed paper award was given for paper 8813, “Loudness Measurement of Multitrack Audio Content Using Modifications of ITU-R BS.1770,” by Pedro Duarte Pestana, Josh Reiss, and Alvaro Barbos. The award for best student paper went to Archontis Politis for “Parametric Spatial Audio Coding for Spaced Microphone Array Recordings” (paper 8905, coauthored by Mikko-Ville Laitinen, Jukka Ahonen, and Ville Pulkki).

## KEYNOTE

Presenting the keynote address at the opening ceremony was Stephen Webber, recently appointed director of music technology innovation at Berklee College of Music’s new campus in Valencia, Spain. Titled “Inventing the Album of 2025,” Webber’s talk sought to consider what is technologically, economically, and artistically possible, to decipher what the record album should look, sound, and feel like come the year 2025.

Webber had got into the art of “turntablism” and DJing in his forties, much to the amusement of his wife and daughters. He had commissioned a symphony with turntables as the solo instrument, and regards his performances as being at the pivot point between hip hop and classical music. Pots and faders are his musical instruments, and he practices for hours a day, just as other musicians (should). He talked about how he had been inspired by Phil Ramone, who died recently, and in particular about the interpersonal aspects of record production and how to get an artist to try something out of their comfort zone. If Phil Ramone had lain awake at night worrying about whether he’d said the right thing to an artist, he suggested, perhaps there is hope for the rest of us. Any kind of art has to move people on an emotional level or it isn’t art.

The album as an artform developed during the 1960s. Then in 1979 the CD came along, followed in 2001 by the iPod. The latter was already 12 years ago, so what about the next stage, Webber asked. It would likely involve visuals, surround sound, instant distribution, and user interaction. “The next generation of album is going to be great, awesome!” he concluded.

## SPONSORS

Berklee College of Music, Valencia Campus, and Italian audio company RCF both joined the convention as Gold sponsors. They were joined by Audio Precision, Audiomatica srl, B&C Speakers spa, bdSound, CESMA, CharterOak, Crane Song Ltd., EKO Music Group spa, Fairlight Europe, Klippel GmbH, LAMBDA srl, Link srl, Microtech Gefell GmbH, NUGEN Audio, Proaudio Consulting srl,



Stephen Webber, keynote speaker, draws a large and attentive crowd.



Jim Kaiser, Awards Chair



Bob Schulein (Bronze Medal)



Zbigniew Kulka (Fellowship)



Lauri Savioja (Fellowship)



Umberto Zanghieri (Citation)

## AWARDS PRESENTATION



Pedro Duarte Pestana receives the best peer-reviewed paper award

Commenting on her reaction to the convention, Gioia Molinari, head of marketing for Gold Sponsor RCF remarked, "The emphasis on serious industry issues and meaningful technical dialogues distinguished this event from the new product introduction focus of many large-scale conventions. The AES European gathering is sized and designed to establish critical new business relationships and to help us assess where the industry is headed technically. We were extremely pleased with the quality of the attendees and the genuine enthusiasm expressed by our co-sponsors. This was one of the most productive and stimulating conventions we have participated in."

"AES conventions are unsurpassed environments for student interaction," said Stephen Webber, director for technology innovation at Berklee College of Music's Valencia Campus. "These are the kinds of events, which inspire dialogues that spark creative breakthroughs. The students we engaged with were bright, inquisitive, and grateful for the opportunity to meet with both their international peers and the industry professionals who are pioneering the changes which are moving our industry forward."

"The AES Rome Convention technical program focus appealed to us as a manufacturer," said CharterOak president Michael Deming. "The format successfully allowed us to present our products in a focused way in two technical train-



SpheroVox, TC Applied Technologies, Tecniche Nuove spa, Trinnov Audio, and ZP Engineering srl.

Sponsors enjoyed their close involvement with convention delegates based on tabletop stands in the public spaces around the meeting rooms. Following through on his promise to serve businesses in new ways, Moses said the decision not to have an exhibition floor was deliberate. "I wanted to test a model based on sponsorship," he said, "in contrast to a traditional exhibition. This event and venue was a good opportunity for such a test. If you look at what our sponsors did—training, product placement, and so on, you can see some very interesting and creative ways for AES to serve them. I'm looking forward to stepping up our sponsor program to another level in 2014."



Professional training sessions given by manufacturers included, clockwise from above, Michael Deming of CharterOak, John Richards of Oxford Digital, and Ian Dennis of Prism Sound.





ing sessions “Intelligent Compression in the Analog Domain” and “Wide Bandwidth Equalization in the Analog Domain.” Our presentation room was filled with industry pioneers, working professionals, and wide-eyed students, creating an environment for training and technical discussions that doesn’t happen on a crowded exhibits floor.”

Other professional training events were offered from sponsors in addition to the CharterOak sessions on wide bandwidth equalization in the analog domain and intelligent compression. Tuesday’s “Audio Design Workshop Live” included sessions on designing transducers for compact active speakers, with Peter Larsen of LOUDSOFT, and the role of DSP in optimizing compact loudspeaker performance from John Richards of Oxford Digital. During the second part in the afternoon, Tony Waldron of Audio EMC gave tips on EMC best practice in audio power amps, and Simon Wollard of Prism discussed tips and tricks to verify designs in active loudspeakers.

## PAPERS SESSIONS

Brought together skilfully by papers cochairs Angelo Farina and Veronique Larcher, a comprehensive set of paper and poster sessions on the latest research and development topics was offered. High on the list of important topics was spatial and 3D audio, with a key paper from a long list of authors describing a data exchange format for head-related transfer functions (HRTFs). HRTFs describe the binaural transfer functions between source and listener’s ears, containing the unique spectral and temporal information that encodes sound directions. The new exchange format, named SOFA for “spatially oriented format for acoustics,” allows HRTFs to be represented in a general way, with consideration of data compression, network transfer, a link to complex room geometries and common programming interfaces such as Matlab.

During an interesting poster session on perception and education, Judith Liebetrau and Sebastian Schneider looked into a comparison of measurement methods for music and emotions. Music emotion recognition (MER), they said, is a part of music information retrieval (MIR), and examines the question about how different parts of music evoke certain emotions and how these can be automatically classified. On a related theme, Magdalena Plewa and Bozena Kostek’s paper on music mood recognition looked at how the mood of a piece of music can be automatically categorized. These two papers highlighted an important and developing area of research that moves onto the next stage of perceptual evaluation and automatic listening systems, taking into account and modeling human emotions.

Chaired by Frank Melchior, the session on room acoustics included an interesting presentation on “archaeoacoustics”—sound that has been measured, modeled, and analyzed with modern tech-

niques in and around ancient sites. This new take on an old science showed how the sound environments from long past can be pieced together as a tool for archaeologists and historians. Following this, Lorenzo Rizzi and Gabriele Ghelfi discussed scattering effects in small rooms, looking at how diffusive scattering panels affect the acoustic properties, using headphone auralization. Balasz Bank looked into the combination of quasi-anechoic and in-room equalization of loudspeakers, which helps to correct the low-frequency errors that can arise from quasi-anechoic measurements only.



An enthusiastic author explains his poster

## ENGINEERING BRIEFS

An increasingly popular category of presentation at conventions is the engineering brief, being a lightly reviewed paper of broad interest to audio engineers. Among the many briefs presented in Rome was one on timecode-aware loudness monitoring, from Arnaud Laborie and his colleagues from Trinnov Audio. As also shown on their stand, if loudness measurements of mixes or broadcasts can be slaved to incoming timecode values, the various loudness parameters of a production can be easily calculated at any time. Akiro Nishimura of Tokyo University of Information Sciences presented his work on the measurement of sound quality differences between individual CD media, while Elliot Cook and Joseph Palys provided an overview of recent patent activity in the audio field from AES member companies. In alternative vein, Justin Paterson from the London College of Music looked into the production of a “free improv” album, “The Making of Quiet Things,” that employed a range of contemporary approaches such as corrective automation and reverb matching.

## WORKSHOPS AND TUTORIALS

Thanks to the coordinating efforts of Natanya Ford, an attractive line-up of workshops offered a chance to learn about the most recent technology and techniques in a wide range of audio fields. Apart from those grouped under individual track themes (see below), a number of stand-alone sessions complemented the program. Chaired by Alan Trevena, chair of the Technical Committee on Loudspeakers and Headphones, the workshop “Applications of 3D Audio in Automotive” looked into the fascinating subject of how



Frank Melchior



Sean Olive



Ron Streicher teaches a packed audience about microphone technology.



Left, Simon Franglen talks about sound design on the film *Avatar*. Right, Stephen Webber struts his stuff at the turntables.



A panel on listening room standards: from left, Thomas Sporer, Francis Rumsey, Sean Olive, Andreas Silzle, and Todd Welti (chair).

3D surround sound might be implemented in cars. There was also a popular workshop on semantic analysis for speech signals, chaired by Jörn Loviscach, considering topics such as speech detection methods, speaker identification, emotion recognition, and automated editing. Ben Kok and Peter Mapp of the Technical Committee on Acoustics and Sound Reinforcement presented both a tutorial and a workshop on acoustic enhancement systems, bringing together researchers, consultants, and suppliers working to change the acoustics of venues by electronic means. For the workshop they were joined by Steve Barbar, Thomas Sporer, Takayuki Watanabe, and Wieslaw Woszczyk.

Among packed tutorials was Stephen Webber's "Turntable Technique: The Art of the DJ," during which the convention's keynote speaker challenged traditional notions of music and technology. "Turntable technique is where the audio engineer and the artist become one" he explained to a crowded room full of enthusiastic listeners. Similarly crowded, Alex Case's popular tutorial on creative distortion, subtitled "You Are in the Over-Driver's Seat,"



Florian Camerer teaches "Loudness 101."



Brian McCarty (left) chairs one of the highly successful workshop panels on sound for pictures.

explained how distortion, creatively applied to elements of a mix, is a source of energy that lifts tracks up out of a crowded arrangement and adds excitement to the performance.

## TRACK PROGRAMS

One of the key track themes for the 134th Convention was Sound for Pictures, chaired by Brian McCarty of the Technical Committee on Sound for Digital Cinema and TV. Rome is a major center for this activity in Europe, making it an important theme for the region. Key among the sessions in that track was a tutorial on music production for film by Simon Franglen, a Golden Globe nominee who has worked on *Avatar*, *Titanic*, and *Skyfall 007*, among many others. Students and experienced delegates alike listened with avid attention to Simon's exposition of the last piece in the production puzzle, explaining how composers have developed new techniques to prepare the music including temporary synth scores. The workshop "Sound Mixers Discuss Their Craft" brought together three leading sound mixers from Italy to discuss their approach to producing award-winning sound tracks in these days of digital cinema.

The loudness track, led by Florian Camerer and sponsored by NUGEN Audio, was concentrated mainly into a single "Loudness Day" on Sunday, bringing together the world's expertise in this challenging new area of legislation and practice. Kicking off the packed sessions was Florian's "Loudness 101—A Hitchhiker's Guide to Audio Nirvana," bringing participants up to speed regarding aspects of loudness control and metering, and Andrew Mason's "All Loudness Recommendations Are Equal—But Some Are More Equal than Others." Andrew's tutorial explained the different loudness standards used in Europe (R 128), the U.S. (A/85), and in other countries such as Australia and Japan. The amusingly titled "Make LUFs Not War" suggested that 2013 could be the year where a renaissance again spreads from Italy. Transparent loudness normalization has arrived to radio, TV, and the iPod, and the panel set out to describe the far-reaching implications this will have on audio production at large.

Live sound was another major focus of the 134th AES Convention, from small room acoustics to large venues. Microphone placement techniques, networked audio distribution, mixing, troubleshooting, and many other disciplines and technology trends were explored. Many of the live sound industry's leading experts were in the city, sharing their knowledge and the latest innovations.

AES has always been at the center of the audio recording community, and the recording track brought together the top engi-



neers to share techniques and promote new ideas, from drum programming to mixing tricks to listening rooms. On the topic of spatial sound, surround sound configurations, loudspeakers and headphones, microphone arrays, head-related transfer functions, Ambisonics, wave field synthesis, and 3D audio in automotive settings were all part of the line-up.

## TECHNICAL TOURS

Alessandro Travaglini brought together five rewarding technical tours, covering some of the local area's most important audio sites. A visit to RAI Saxa Rubra gave a limited number of lucky delegates the chance to see the public broadcasting station's largest and most important production center in Italy. Monday's tour of Auditorium Parco della Musica, designed by the famous architect Renzo Piano, was combined with Forum Village Music Studios, to include the Cavea (a piazza and open air theater), the Foyer, and the Archaeological Museum, as well as the concert halls. Forum Village studios was founded in 1969 by Ennio Morricone, among others, and is one of the most prestigious of Italy's studios.

Cinecittà Studios and Deluxe Digital Rome made up another combo tour for those with a penchant for film sound facilities. Home of great film directors such as Fellini and Scorsese, Cinecittà's visitors were able to see the permanent outdoor sets. At Deluxe Digital, the four dubbing rooms and theatrical mixing rooms, as well as editing facilities were on show. Complementing these, and still in the film sound vein, was a visit to Technicolor Sound Services Rome, where visitors were guided through its state of the art recording and mixing facilities. Rounding off the film sound theme, two of Italy's most acclaimed Foley artists gave a special demonstration of their art in the Fono Roma Film Recording studios, with its 50 editing rooms, 15 dubbing suites, and 6 mixing theaters.

## SPECIAL EVENTS

Among the popular special events at the convention, Wolfgang Klippel's Heyser Memorial Lecture drew a large crowd to hear about his long-time work on the optimization of small loudspeakers. The loudspeaker is the weakest part of the audio chain, explained Klippel, and it generates much more heat than sound power while adding undesirable distortion. As there is an increasing trend toward small transducers in portable devices where battery power consumption is a critical factor, high efficiency and minimal use of resources are important. Wolfgang's research into the optimization and trade-offs possible in such systems was explained with striking clarity and good humor, showing also how nonlinear preprocessing of the signal can be used to compensate for the problem that voice coils can leave the magnetic gap and give rise to intermodulation distortion.

The rooftops of Rome and the beautiful parkland surrounding



The Heyser Lecture certificate of recognition is presented to Wolfgang Klippel (center right), flanked by, from left, Bob Schulein, Michael Kelly, and Francis Rumsey of the Technical Council.

the Villa Borghese provided a striking backdrop for the excellent convention banquet, held on the Roof Garden of the charming and prestigious Marriott Hotel Grand Flora. Located on the Via Veneto, in the heart of Rome, the view was breathtaking and the relaxed atmosphere combined with excellent food and wine offered delegates the chance to unwind and share good company after a long day at the convention center.

On the Monday night a select group of delegates enjoyed the strains of the Greg Burk Trio, courtesy of Bob Schulein and his company Immersav, which made a combined binaural and HD video recording that is available for download from the AES website at <http://www.aes.org/events/134/jazz/>. Extracts of these recordings can be heard both for loudspeakers (with crosstalk cancelling) and headphones, providing a way for those not able to attend the concert to experience the sense of being present at the concert venue.

## STUDENT EVENTS

Thanks to the full program of student activities and in-depth learning opportunities at the 134th Convention, a healthy population of young people flocked the corridors and conference spaces. As a result of the efforts of John Krivit (chair of the Education Committee) and Philip Waldenberger (chair of the Student Delegate Assembly), the student program and career development events were packed with eager customers, trying to discover how best to pursue their entry into the audio community.

A student design competition, sponsored by DSP Quattro, was complemented by a two-part recording competition in a number of genre categories, sponsored by Focal Press and Telefunken, with both competitions judged by distinguished audio engineers from Italy and around the world. A design exhibition also allowed an opportunity for students to show off their work in a form of audio science fair, using tabletop exhibits and posters. The Education Fair allowed institutions offering studies in audio to promote their programs, while the Education Forum provided a space for an exploration of strategies for making connections in the professional world and to discuss the curriculums and philosophies of individual education programs. During the final SDA meeting a new vice chair of the assembly was elected, Simon Claudius Wystrach from York in the UK.



The Greg Burk Trio in a live jazz session



Colin Pfund, Marija Kovacina, and Philip Waldenberger of the Student Delegate Assembly



Question time during a lively Education Forum



Education providers show their wares at the Education Fair.



John Krivit with the winners of the student competitions

## TECHNICAL COUNCIL AND STANDARDS MEETINGS

The Technical Council and Standards Committee represent vital functions of the AES's technical leadership in the industry, and throughout the convention meetings took place in the various topic-based committees of these groups. Discussing new developments in subjects such as cinema sound calibration, digital audio, archiving, and game audio, and planning the Society's education events and standards strategy for the coming years, these committees welcomed the leading lights in audio engineering from around the globe.

## AES MEETINGS

The Regions and Sections Forum provides a chance for AES section officers attending the convention to meet with regional vice presidents and the chair of the Regions and Sections committee, to share experiences of good practice and hear about the innovative ways that worldwide sections are running their operations. Led by Peter Cook, this dynamic event showed just how much good work



Francis Rumsey Technical Council meeting: from left, Natanya Ford, Peter Mapp, Bob Schulein, Francis Rumsey (chair) and Michael Kelly



Peter Cook (left) moderates the Regions and Sections Forum, and Ville Pulkki (above) chairs the Publications Policy meeting.

is being undertaken by volunteer committees in different parts of the world to educate and inform local members about the latest in audio engineering.

A number of other AES committee meetings also took place during the Rome convention, including an informal gathering of the Board of Governors after the close of the convention on Tuesday.

## THANKS TO...

Particular thanks are due to Facilities Chairs Alberto Gaetti and Alberto Pinto for getting so much equipment together and working in a very short time during the convention setup and for their continuous support during the event itself. Michael and Sue Williams did their usual sterling work in setting up and manning a packed bookstore during the entire convention, providing a collection

of audio books and resources in one place not found anywhere else. All in all the 134th should be judged a resounding success, and a model for European AES conventions that can be developed well in the years to come.





Umberto Zanghieri, convention chair,  
with papers cochair, Angelo Farina



Véronique Larcher,  
papers cochair



Natanya Ford,  
workshops and tutorials



Philip Waldenberger and John Krivit,  
student events chairs



Brian McCarty,  
sound for pictures chair



Florian Camerer,  
loudness chair



Alessandro Travaglini,  
technical tours chair



Alberto Gaetti and Alberto Pinto,  
facilities chairs

## AES THANKS THE 134<sup>th</sup> CONVENTION COMMITTEE



Members of the AES Board of Governors and committee chairs after the final session of the 134th Convention.