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AND PROGRAM SESSIONS

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This program is current as of 9/18. For the most up-to-date information see www.aes.org/147/ or go to the mobile app.
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Welcome to the 147th Audio Engineering Society Convention in New York!

As President of AES it is an honor and my great pleasure to cordially welcome you to the annual highlight of our events!

The Convention in its home city is always a very special one. The sparkling, glamorous city of New York is full of life, a city that never sleeps, and one that has more to offer than any other metropolis in the world. Whether it is music, theater or visual arts, many of the most important protagonists can be found here, either as performing artists or as residents. This represents the perfect frame for an exceptional audio event. Following the New York State motto “Excelsior,” the New York AES Convention is representing the annual highlight for all audio enthusiasts around the world—always a little bigger, better, and more spectacular.

I remember vividly my first New York Convention attendance several years ago: It was like a journey into another dimension! I had no idea how to manage the split in order to be able to participate in as many parallel Workshops, Tutorials, Paper Sessions, and meetings as possible. And how to manage to see as much as possible in the exhibition?

Well, fortunately there is most useful guidance available: The convention committee has again organized the schedule into various tracks, to help you, assisted by the mobile app, to find the sessions relevant to your industry or area of interest. This year’s Convention also introduces several new Technical Program Tracks, including Electronic Dance Music, Electronic Instrument Design & Applications, and Hip-Hop and R&B. Always on top of technological development the program, covering the most talked-about topics in the industry, will definitely excite you! The exhibition will offer unique experience and options to connect with the industry as well—don’t miss to explore the newest technology trends and make your connections.

Nadja Wallaszkovits
We all know that AES conventions do not happen of their own accord. The organization of this exciting Convention program is based on the tremendous energy and commitment of the Convention Committee, AES Headquarters office, contractors, as well as the numerous volunteers and supporting persons within and around our team. This is partnered by the vital process of bringing together exhibitors and sponsors to create an outstanding exhibition of the latest audio technology and services. I want to take this opportunity to express my sincere thanks!

Now I wish you an exciting experience and cordially invite you to stay connected—also throughout the year! There are so many more AES activities to explore and the next one is already waiting for you. Please enjoy the 147th Audio Engineering Society Convention in New York!

NADJA WALLASZOKVITS
AES PRESIDENT
Hello and welcome to the 147th AES Convention!

We're delighted you've joined us for the world’s largest and most significant gathering of audio professionals, exhibitors, researchers, educators, students, and music creators. If you are a regular to the convention, we are glad to see you back. For those of you who are new to the show, we are happy to see you! We are confident that you will find your AES New York 2019 experience worthy of your time, the vital and comprehensive technical program worthy of your attendance, and the Audio Engineering Society worthy of membership and participation.

The Convention organizing committee has put together an exciting program, and you have a daunting task in front of you: curating your show experience from a wealth of options. The program offers something for everyone and addresses the specific needs for today's and tomorrow's generation of audio professionals. To help you navigate the convention, all of our special events, technical programs and sessions are tagged according to themed tracks, letting you presort by topics. These tracks include recognizable themes that take you on a deep dive into audio practice and research in Acoustics and Psychoacoustics, Archiving and Restoration, the Audio Builders Workshop, Audio for Cinema, Broadcast and Online Delivery, Education, Game Audio and VR, Historical, Immersive and Spatial Audio, Networked Audio, Product Development, Recording and Production, and Sound Reinforcement.

We are excited to introduce three new tracks at this Convention: Electronic Dance Music, Electronic Instrument Design and Applications, and Hip-Hop and R&B. Each contains workshops in technology and workflows used in music production today. Many of you first timers will have been attracted to the convention by this content, and by the added bonus of hip-hop pioneer GrandMaster Flash delivering the keynote address. We know that you will discover that there's compelling and relevant content for you throughout the Convention program.

We are going green! The AES is committed to reducing the environmental impact. This year’s printed program booklet covers the essential information about the program and is complemented by a Mobile App containing all the comprehensive and most up to date information.

The AES embraces the diversification of the Convention’s program, presenters and attendees to reflect our world, where people
of all identities, ages and interests are enthusiastically working to make audio awesome.

For the third year in a row, we are co-locating our convention with The NAB Show New York at the Javits, offering you a broader experience while confirming the strategic role audio plays in the entertainment and content creation industry that is growing alongside a rapid proliferation of distribution and experiential mediums.

The exhibition floor has been expanded to reflect the vital role that new technologies are playing, combining your talent and skills with the newest in creative tools and product development. All of audio production is experiencing a remarkable revival of fundamental tools and techniques, while being expanded in scope by new technologies. Optimize your creativity and future success opportunities by visiting our exhibitors and the exhibition stages and absorbing the critical knowledge that will enable you to profit from your heightened awareness and enhanced skills.

As co-chairpersons for the show we are grateful for the contributions of each committee volunteer, and the AES headquarters staff. We offer our appreciation for the time and energy devoted to planning and developing this Convention. The AES relies in great part on the efforts of hundreds of volunteers to make its conventions happen. While at AES New York, please take a moment to stop and thank the volunteers wearing Convention Committee badges, as well as the legion of student volunteers, as you move between audio adventures.

On behalf of the 147th Convention Committee, we wish you a most informative and exciting time while at the Convention and New York. Dive deep and enjoy the show!

AGNIESZKA ROGINSKA, VALERIE TYLER, JONATHAN WYNER
CONVENTION COMMITTEE CO-CHAIRS
JACOB K. JAVITS CONVENTION CENTER  
36th Street and 11th Avenue (main entrance)  
New York, NY, USA  

The Javits Center is located between 34th Street and 39th Street on 11th Avenue.  

General Information Number: +1 212 216 2000  

REGISTRATION  
Registration Desk Hours:  
Tuesday, October 15  3:00 pm – 7:00 pm  
Wednesday, October 16  8:00 am – 6:00 pm  
Thursday, October 17  8:00 am – 6:00 pm  
Friday, October 18  8:00 am – 6:00 pm  
Saturday, October 19  8:00 am – 3:00 pm  

REGISTRATION FEES:  
All AES New York 2019 registrations include the co-located NAB Show New York Exhibition and Core Sessions package, a $75 value.  

Exhibits-Plus Badge Prices  
• Honorary/Life Members  No Fee  
• Members & Associates  $ 75  
• Non-Member  $ 75  

All Access Badge Prices  
• Honorary/Life Members  No Fee  
• Members & Associates  $620  
• AES Student Member  $165  
• Non-Member  $755  

Single-Day All Access Badge Prices  
• Members & Associates  $230  
• AES Student Member  $ 75  
• Non-Member  $285  

Two-Day All Access Badge Prices  
• Members & Associates  $420  
• AES Student Member  $120  
• Non-Member  $530  

All Access badges include access to everything included with the Exhibits-Plus Badge, all AES New York 2019 Technical Program sessions, plus the co-located NAB Show New York Exhibition and Core Sessions package.  

Individual Tickets (members and nonmembers):  
Individual tickets may be bought in the Registration area. You must have purchased an Exhibits Plus pass to obtain individual event tickets.
PAYMENTS
The AES will accept the following payments: cash or credit cards (Eurocard/Mastercard/Visa/American Express) are accepted for on-site registration.

TECHNICAL PAPERS, WORKSHOPS, SEMINARS, AND SPECIAL EVENTS HOURS
Wednesday, October 16  9:00 am – 6:00 pm
Thursday, October 17   9:00 am – 6:00 pm
Friday, October 18     9:00 am – 6:00 pm
Saturday, October 19   9:00 am – 5:00 pm

These times are general; please refer to specific sections in this booklet and/or the Convention Planner for more specific information.

EXHIBITS
The Exhibit Booths are located in Hall 3E. Demo Rooms are located on Levels 1 and 2. Please refer to the 147th Convention Exhibits-Plus Flyer for a complete list of exhibitors and their locations.

Exhibit Hours
Wednesday, October 16  10:00 am – 6:00 pm
Thursday, October 17   10:00 am – 6:00 pm
Friday, October 18     10:00 am – 4:00 pm

MEMBERSHIP
AES Membership Services are located at Registration in Hall 3E. Why not become a member of the Audio Engineering Society? The difference between the full program registration fee for nonmembers versus AES members equals the AES membership fee for the year and includes subscription to the 10-issue per year Journal (JAES) and lower rates for AES Publications. If you wish to become an AES member, please pay the nonmember registration fee and contact AES Membership in the registration area.

PRESS CENTER
Press who have registered in advance can pick up their badges at the Advance Registration in Hall 3E. Press who register on site should go to the Press Center first for verification of credentials and then proceed to the Registration area in Hall 3E, to receive their badges.
Access to the Press Center is reserved exclusively for journalists and publication staff. Exhibitors are welcome to deliver press-kits and information for the press but are not permitted to collect any literature from other exhibitors.

Press Center Opening Hours
Wednesday, October 16  9:00 am – 6:00 pm
Thursday, October 17   9:00 am – 6:00 pm
Friday, October 18 9:00 am – 6:00 pm  
Saturday, October 19 9:00 am – 4:00 pm

JAVITS CONCIERGE DESK

The Concierge Desk is located on Level 3, in the Crystal Palace. Literature, including sightseeing information and maps will be available to attendees wishing to explore New York City. Also, Broadway theater tickets can be purchased at this desk. A Javits Center specialist will be available to assist you.

AES DAILY

The editorial office of the AES official Daily “Convention News” is located on level 2. Three issues are released, the third one serving days 3 and 4 of the convention.

FEDEX OFFICE AND PRINT CENTER

FedEx, located on Level 2, is equipped to accommodate business needs, such as typing, photocopying, and Federal Express services. The center is open during convention exhibit hours.

PUBLIC TRANSPORTATION INFORMATION

Please keep in mind that the public transportation fare is $2.75. The subways accept MetroCards. Buses accept MetroCards and exact change fares. With MetroCards you can transfer from subway to bus and bus to subway for one fare. MetroCards are available at local stores.

**Buses**—M34 runs east/west on 34th Street and stops on 11th Avenue outside the Javits Center and at Penn Station. M42 runs east/west on 42nd street. The closest stop to the Javits Center is 42nd Street and 11th Avenue.

**Subways**—7 train now runs from midtown (Grand Central Terminal as well as the station at 42nd St. and 5th Avenue) to 34th Street and 11th Avenue, serving Jacob K. Javits Convention Center.

**Ferry Service**—The NY Waterway operates a ferry from Weehawken, NJ. In 4 minutes the ferry takes you across the Hudson River to 39th Street and 12th Avenue, one block from the Javits Center. Park at the convenient lot adjacent to the ferry terminal in Weehawken and take a ferry which leaves every 10 to 15 minutes during peak hours.

PARKING

The Javits Convention Center does not have a parking garage, but there are many parking facilities in the general area.

FIRST-AID SERVICES AT JAVITS CENTER

First-aid services are located on Level 1, rear of Hall D.
AES CONVENTION HOTELS
Courtyard New York Manhattan/Midtown West  +1 212 553 3000
Double Tree by Hilton  +1 212 607 8888
Paramount Hotel New York  +1 212 764 5500
Stewart Hotel  +1 212 563 1800
Wyndham New Yorker Hotel  +1 212 971 0101
YOTEL New York  +1 646 449 7700
| AP-01 | New Developments in Acoustical Simulations | Wednesday, Oct. 16  
4:45 pm – 5:45 pm  
Room 1E12 |
|------|--------------------------------|----------------------------------|
| AP-02 | Optical/Fiber Optic Microphone | Thursday, Oct. 17  
9:00 am – 10:00 am  
Room 1E08 |
| AP-03 | Shame on Us: Phase Is Not Polarity! | Thursday, Oct. 17  
1:00 pm – 1:45 pm  
Room 1E12 |
| AP-04 | Circles of Confusion | Thursday, Oct. 17  
4:30 pm – 5:30 pm  
Room 1E13 |
| AP-05 | How To Organize Unbiased PA/SR Shoot-Outs | Friday, Oct. 18  
10:30 am – 11:30 am  
Room 1E13 |
| AP-06 | Circles of Excellence | Friday, Oct. 18  
1:15 pm – 2:15 pm  
Room 1E12 |
| AP-07 | Digital Filters, Filter Banks and their Design | Friday, Oct. 18  
3:00 pm – 4:00 pm  
Room 1E13 |
| AP-08 | Listening Tests—Basic Concepts | Friday, Oct. 18  
4:30 pm – 5:30 pm  
Room 1E08 |
| AP-09 | To PEAQ or Not to PEAQ? BS.1387 Revisited | Saturday, Oct. 19  
9:00 am – 10:00 am  
Room 1E07 |

**AP01 - NEW DEVELOPMENTS IN ACOUSTIC SIMULATION: REFLECTIONS ON YEAR ONE IN AN ACOUSTIC LAB (PREDICTING AUDIO ACCURACY WITH ALGORITHMS & VIRTUAL REALITY)**

Wednesday, October 16, 4:45 pm – 5:45 pm  
Room 1E12

Presenters:  
Peter D’Antonio, WSDG, Walters Storyk Design Group  
Sergio Molho, WSDG, Walters Storyk Design Group, Highland, NY, USA; Miami, FL, USA  
Dirk Noy, WSDG, Basel, Switzerland

**AP02 - OPTICAL/FIBER OPTIC MICROPHONE: WHEN AND WHY SHOULD I CONSIDER USING AN OPTICAL MICROPHONE?**

Thursday, October 17, 9:00 am – 10:00 am  
Room 1E08
**Acoustics & Psychoacoustics**

**Presenters:** Ronald Ajemian, Owl Fiber Optics, Flushing, NY, USA  
Yuvi Kahana, Optoacoustics, Israel  
Moshav Mazor, Israel

*This session is presented in association with the AES Technical Committee on Fiber Optics for Audio*

**AP03 - SHAME ON US: PHASE IS NOT POLARITY!**  
Thursday, October 17, 1:00 pm – 1:45 pm  
Room 1E12

**Presenter:** Cesar Lamschtein, Kaps Audio Production Services, Montevideo, Uruguay; Mixymaster, Montevideo, Uruguay

**AP04 - CIRCLES OF CONFUSION**  
Thursday, October 17, 4:30 pm – 5:30 pm  
Room 1E13

**Chair:** Thomas Lund, Genelec Oy, Iisalmi, Finland

**Panelists:** Sean Olive, Harman International, Northridge, CA, USA  
Susan Rogers, Berklee College of Music, Boston, MA, USA

**AP05 - HOW TO ORGANIZE UNBIASED PA/SR SHOOT-OUTS**  
Friday, October 18, 10:30 am – 11:30 am  
Room 1E013

**Presenters:** Eddy Bøgh Brixen, EBB-consult, Smørum, Denmark; DPA Microphones, Allerød, Denmark  
Malle Kaas, Women in Live Music  
Bob McCarthy, Meyer Sound, New York, NY, USA  
Scott Sugden, L-Acoustics, Oxnard, CA, USA

*This session is presented in association with the AES Technical Committee on Acoustics and Sound Reinforcement*

**AP06 - CIRCLES OF EXCELLENCE**  
Friday, October 18, 1:15 pm – 2:15 pm  
Room 1E012

**Moderator:** Thomas Lund, Genelec Oy, Iisalmi, Finland

**Panelists:** Florian Camerer, ORF, Austrian TV - Vienna, Austria; EBU, European Broadcasting Union  
Bob Katz, Digital Domain Mastering, Orlando, FL, USA  
George Massenburg, Schulich School of Music, McGill University, Montreal, Quebec, Canada; Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT), Montreal, Quebec, Canada
**AP07 - DIGITAL FILTERS, FILTER BANKS AND THEIR DESIGN FOR AUDIO APPLICATIONS—WITH PYTHON EXAMPLES**  
Friday, October 18, 3:00 pm – 4:00 pm  
Room 1E13

Presenter: **Gerald Schuller**, Ilmenau University of Technology, Ilmenau, Germany; Fraunhofer Institute for Digital Media technology (IDMT), Ilmenau, Germany

*This session is presented in association with the AES Technical Committee on Coding of Audio Signals*

**AP08 - LISTENING TESTS—UNDERSTANDING THE BASIC CONCEPTS**  
Friday, October 18, 4:45 pm – 5:45 pm  
Room 1E08

Presenter: **Jan Berg**, Luleå University of Technology, Piteå, Sweden

*This session is presented in association with the AES Technical Committee on Perception and Subjective Evaluation of Audio Signals*

**AP09 - TO PEAQ OR NOT TO PEAQ? - BS.1387 REVISITED**  
Saturday, October 19, 9:00 am – 10:00 am  
Room 1E07

Presenters: **Pablo Delgado**, International Audio Laboratories Erlangen, a joint institution of Universität Erlangen-Nürnberg and Fraunhofer IIS, Erlangen, Germany; Fraunhofer Institute for Integrated Circuits IIS, Erlangen, Germany  
**Thomas Sporer**, Fraunhofer Institute for Digital Media Technology IDMT, Ilmenau, Germany

*This session is presented in association with the AES Technical Committee on Perception and Subjective Evaluation of Audio Signals*

**ARCHIVING & RESTORATION**

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<thead>
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<th>Session</th>
<th>Title</th>
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<th>Time</th>
<th>Room</th>
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<td>AR-01</td>
<td>Long Term Preservation Audio Assets (An AES Special Event)</td>
<td>Thursday, Oct. 17</td>
<td>4:30 pm – 5:30 pm</td>
<td>Room 1E15+16</td>
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<tr>
<td>AR-02</td>
<td>Preserving Hip Hop</td>
<td>Friday, Oct. 18</td>
<td>10:15 am – 11:15 am</td>
<td>Room 1E11</td>
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<td>Session ID</td>
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<tr>
<td>AR-03</td>
<td>Metadata from Creation to Consumption to Preservation</td>
<td>Friday, Oct. 18</td>
<td>11:15 am – 12:15 pm</td>
<td>Room1E11</td>
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<tr>
<td>AR-04</td>
<td>Restoring Hank Williams</td>
<td>Friday, Oct. 18</td>
<td>2:45 pm – 3:45 pm</td>
<td>Room1E11</td>
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<td>AR-05</td>
<td>Preserve This Podcast</td>
<td>Friday, Oct. 18</td>
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<td>AR-06</td>
<td>You Mean You Wanted Those Tracks?!</td>
<td>Friday, Oct. 18</td>
<td>4:30 pm – 5:30 pm</td>
<td>Room1E11</td>
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<tr>
<td>AR-07</td>
<td>Archiving the 90s!</td>
<td>Saturday, Oct. 19</td>
<td>9:00 am – 10:00 am</td>
<td>Room1E21</td>
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<tr>
<td>AR-08</td>
<td>Finding Funding</td>
<td>Saturday, Oct. 19</td>
<td>10:00 am – 11:00 am</td>
<td>Room1E21</td>
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<tr>
<td>AR09</td>
<td>Audio Repair and Restoration for Music and Post</td>
<td>Saturday, Oct. 19</td>
<td>1:30 pm – 4:30 pm</td>
<td>Room1E13</td>
</tr>
</tbody>
</table>

**AR01 - LONG TERM PRESERVATION OF AUDIO ASSETS**
(AN AES SPECIAL EVENT)
Thursday, October 17, 4:30 pm – 5:30 pm
Room 1E15+16

Moderator: Jessica Thompson, Jessica Thompson Audio, Berkeley, CA, USA

Panelists: Jeff Balding, Recording Academy Producers & Engineers Wing
Rob Friedrich, Library of Congress
Jamie Howarth, Plangent Process
Pat Kraus, UMG
Greg Parkin, Iron Mountain
Cheryl Pawelski, Omnivore Recording
Toby Seay, Drexel University; IASAs

**AR02 - CACHE RULES EVERYTHING AROUND ME:**
ARCHIVING AND PRESERVING HIP-HOP IN A DIGITAL AGE
Friday, October 18, 10:15 am – 11:15 am
Room 1E11

Chair: Sommer McCoy, The Mixtape Museum, New York, NY, USA
Archiving & Restoration

Panelists: Rocky Bucano, Universal Hip-Hop Museum
           Manny Faces, The Center for Hip-Hop Advocacy
           Syreeta Gates
           DJ Rich Nice

AR03 - METADATA FROM CREATION TO CONSUMPTION TO PRESERVATION
Friday, October 18, 11:15 am – 12:15 pm
Room 1E11
Chair: Brad McCoy, Library of Congress, Culpeper, VA, USA
Panelists: Tony Brooke
           Maureen Droney, The Recording Academy, Los Angeles, CA, USA
           Tony Gerevino
           Paul Jessop

AR04 - RESTORING HANK WILLIAMS
Friday, October 18, 2:45 pm – 3:45 pm
Room 1E11
Presenters: Michael Graves, Osiris Studio, Los Angeles, CA, USA
            Cheryl Pawelski, Omnivore Records
            Jett Williams
            Kelly Zumwalt

AR05 - PRESERVE THIS PODCAST
Friday, October 18, 4:00 pm – 4:30 pm
Room 1E11
Presenters: Sarah Nguyen, Metro
            Molly Schwartz

AR06 - YOU MEAN YOU WANTED THOSE TRACKS?!: CHALLENGES OF PRESERVING MULTITRACK RECORDINGS
Friday, October 18, 4:30 pm – 5:30 pm
Room 1E11
Chair: Jeff Willens, New York Public Library, Fair Lawn, NJ, USA
Panelists: Bryan Hoffa
           Kelly Pribble, Iron Mountain Entertainment Services, Moonachie, New Jersey, USA

Presented in collaboration with ARSC (Association for Recorded Sound Collections)
Archiving & Restoration

AR07 - ARCHIVING THE 90s!
Saturday, October 19, 9:00 am – 10:00 am
Room 1E21

Moderator: Jason Bitner, Traffic Entertainment Group, Somerville, MA, USA

Panelists: David Ackerman, Harvard University, Cambridge, MA, USA
Eddie Ciletti, Manhattan Sound Technicians, Inc., West Saint Paul, MN, USA
Kelly Pribble, Iron Mountain Entertainment Services, Moonachie, New Jersey, USA
Catherine Vericolli

AR08 - FINDING FUNDING: HOW TO CONNECT AUDIO ARCHIVAL COLLECTIONS, VENDORS, AND FUNDERS
Saturday, October 19, 10:00 am – 11:00 am
Room 1E21

Moderator: John Krivit, Professional Audio Design, Hanover, MA, USA; Emerson College, Boston, MA, USA

Panelists: Joy Banks, CLIR
Steve Rosenthal, MARS (MagicShop Archive and Restoration Studios), Brooklyn, NY, USA
Gerald Seligman
Derek Spencer, GRAMMY Museum

AR09 - AUDIO REPAIR AND RESTORATION FOR MUSIC AND POST: BUILD YOUR SKILLS
Saturday, October 19, 1:30 pm – 4:30 pm
Room 1E13

Presenters: Dave Barber, Juniper Post, Burbank, CA, USA
Jessica Thompson, Jessica Thompson Audio, Berkeley, CA, USA
Jonathan Wyner, M Works Studios/iZotope/Berklee College of Music, Boston, MA, USA; M Works Mastering

Preregistration is required for this event.

________________________________________

AUDIO BUILDERS WORKSHOP

AB-01 Classroom DIY Projects
Wednesday, Oct. 16
11:00 am – 12:00 noon
Room 1E08
AB01 - CLASSROOM DIY PROJECTS  
Wednesday, October 16, 11:00 am – 12:00 noon  
Room 1E08

Moderator: Chris Kincaid, Audio Builders Workshop, Louisville, KY, USA

Panelists: Charlie DeVane, Mathworks, Natick, MA, USA; University of Massachusetts Lowell, Lowell, MA, USA; Robert-Eric Gaskell, McGill University, Montreal, QC, Canada; Paul Lehrman, Tufts University, Medford, MA, USA

AB02 - CUSTOM CONSOLES / POWER AND GROUNDING  
Wednesday, October 16, 1:30 pm – 2:30 pm  
Room 1E09

Chair: Owen Curtin, Audio Builders Workshop, Lexington, MA, USA; Bridge Sound and Stage, Cambridge, MA, USA

Panelists: Eddie Ciletti, Manhattan Sound Technicians, Inc., West Saint Paul, MN, USA; David Thibodeau, Analog Devices, Wilmington, MA, USA

AB03 - PROJECT TO PRODUCT  
Thursday, October 17, 4:30 pm – 5:30 pm  
Room 1E09

Chair: Owen Curtin, Audio Builders Workshop, Lexington, MA, USA; Bridge Sound and Stage, Cambridge, MA, USA

Panelists: Robert-Eric Gaskell, McGill University, Montreal, QC, Canada

AB-02 Custom Consoles / Power and Grounding  
Wednesday, Oct. 16  
1:30 pm – 2:30 pm  
Room 1E09

AB-03 Project to Product  
Thursday, Oct. 17  
4:30 pm – 5:30 pm  
Room 1E09

AB-04 Reviving Classic and Esoteric Tech  
Friday, Oct. 18  
1:45 pm – 2:45 pm  
Room 1E13

AB-05 DIY Build Clinic  
Saturday, Oct. 19  
9:00 am – 12:00 noon  
South Concourse B
Audio Builders Workshop

Peterson Goodwyn, DIY Recording Equipment, Philadelphia, PA, USA
Denis Labrecque, DeLab Consulting, Half Moon Bay, CA, USA
Brewster LaMacchia, Clockworks Signal Processing LLC, Andover, MA, USA

AB04 - REVIVING CLASSIC AND ESOTERIC TECH
Friday, October 18, 1:45 pm – 2:45 pm
Room 1E13
Moderator: Chris Kincaid, Audio Builders Workshop, Louisville, KY, USA
Panelists: Mike Buffington
Stephen Masucci

AB05 - DIY BUILD CLINIC: STARTING YOUR NEXT BUILD TODAY WITH AUDIO BUILDERS WORKSHOP
Saturday, October 19, 9:00 am – 12:00 noon
South Concourse B
Co-Chairs: Owen Curtin, Audio Builders Workshop, Lexington, MA, USA; Bridge Sound and Stage, Cambridge, MA, USA
Chris Kincaid, Audio Builders Workshop, Louisville, KY, USA
Panelists: Peterson Goodwyn, DIY Recording Equipment, Philadelphia, PA, USA
Brewster LaMacchia, Clockworks Signal Processing LLC, Andover, MA, USA
Matthew McGlynn, MicParts.com, Sebastopol, CA, USA; Roswell Pro Audio

AUDIO FOR CINEMA

AC-01 The Portable Score Mix  Saturday, Oct. 19
9:00 am–10:00 am
Room 1E17

AC-02 Best Practices in Re-Recording Mixing  Saturday, Oct. 19
10:15 am–11:15 am
Room 1E12

AC-03 You Don’t Have to Go There: Recording Remotely  Saturday, Oct. 19
1:30 pm–2:30 pm
Room 1E17

AC-04 Ambisonics in Cinema  Saturday, Oct. 19
3:00 pm–4:00 pm
Room 1E08
AC01 - THE PORTABLE SCORE MIX: CINEMATIC SCORES ON AN EPISODIC BUDGET
Saturday, October 19, 9:00 am – 10:00 am
Room 1E17
Presenter:  John Whynot, Berklee College of Music, Los Angeles, CA, USA

AC02 - BEST PRACTICES IN RE-RECORDING MIXING
Saturday, October 19, 10:15 am – 11:15 am
Room 1E12
Presenter:  Tom Fleischman, Soundtrack Film & Television, New York, NY, USA

AC03 - YOU DON’T HAVE TO GO THERE: RECORDING CINEMA AUDIO REMOTELY
Saturday, October 19, 1:30 pm – 2:30 pm
Room 1E17
Presenter:  Robert Marshall, Source Elements

AC04 - AMBISONICS IN CINEMA
Saturday, October 19, 3:00 pm – 4:00 pm
Room 1E08
Presenter:  John Escobar, Berklee College of Music, Boston, MA, USA

BROADCAST & ONLINE DELIVERY

B-01 Podcast Production Studios  Wednesday, Oct. 16
10:30 am –12:00 noon
Room 1E07

B-02 Innovations in Audio Processing  Wednesday, Oct. 16
1:30 pm –3:30 pm
Room 1E07

B-03 Advanced Audio for Sports  Wednesday, Oct. 16
3:45 pm –5:15 pm
Room 1E07

B-04 An Intimate Evening with Tesla and Twain  Wednesday, Oct. 16
7:00 pm & 9:00 pm
Radio Waves Building
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Day/Date</th>
<th>Time</th>
<th>Room/Location</th>
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<tbody>
<tr>
<td>B-05</td>
<td>Performance Spaces for Broadcast</td>
<td>Thursday, Oct. 17</td>
<td>9:00 am – 10:30 am</td>
<td>Room 1E07</td>
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<tr>
<td>B-06</td>
<td>Live Broadcasting with Object Based Audio</td>
<td>Thursday, Oct. 17</td>
<td>1:30 pm – 3:00 pm</td>
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<tr>
<td>B-07</td>
<td>Anatomy of a Stream</td>
<td>Thursday, Oct. 17</td>
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<tr>
<td>B-08</td>
<td>Advanced Audio for ATSC 3.0 Broadcast</td>
<td>Thursday, Oct. 17</td>
<td>4:30 pm – 6:00 pm</td>
<td>Room 1E07</td>
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<tr>
<td>B-09</td>
<td>The Technical History of WNYC</td>
<td>Thursday, Oct. 17</td>
<td>4:00 pm – 5:30 pm</td>
<td>Room 1E07</td>
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<tr>
<td>B-10</td>
<td>Tour of Stitcher Studios</td>
<td>Thursday, Oct. 17</td>
<td>7:00 pm – 8:00 pm</td>
<td>Stitcher Studios</td>
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<tr>
<td>B-11</td>
<td>Sound Knowledge</td>
<td>Friday, Oct. 18</td>
<td>9:00 am – 10:30 am</td>
<td>Room 1E07</td>
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<tr>
<td>B-12</td>
<td>SBE Certification Exam</td>
<td>Friday, Oct. 18</td>
<td>9:30 pm – 12:30 pm</td>
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<td>B-13</td>
<td>Metadata—What Works, What Does Not and Why</td>
<td>Friday, Oct. 18</td>
<td>10:30 am – 12:00 noon</td>
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<tr>
<td>B-14</td>
<td>Telling Stories with Sound</td>
<td>Friday, Oct. 18</td>
<td>1:15 pm – 2:30 pm</td>
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<tr>
<td>B-15</td>
<td>Facility Designed for IP</td>
<td>Friday, Oct. 18</td>
<td>2:30 pm – 4:00 pm</td>
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<tr>
<td>B-16</td>
<td>Immersive Audio Mixing and Workflow for Broadcast</td>
<td>Friday, Oct. 18</td>
<td>4:00 pm – 5:30 pm</td>
<td>Room 1E07</td>
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<tr>
<td>B-17</td>
<td>The Current War</td>
<td>Friday, Oct. 18</td>
<td>6:30 pm – 8:00 pm</td>
<td>Dolby Theater</td>
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<td>B-18</td>
<td>Convergence of Broadcast Over-the-Air and Streaming Delivery</td>
<td>Saturday, Oct. 19</td>
<td>10:15 am – 11:45 am</td>
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<td>B-19</td>
<td>Emergency Preparedness Safety for Broadcasters</td>
<td>Saturday, Oct. 19</td>
<td>1:30 pm – 2:45 pm</td>
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Broadcast & Online Delivery

B01 - PODCAST PRODUCTION STUDIOS
Wednesday, October 16, 10:30 am – 12:00 noon
Room 1E07
Moderators: Romina Larregina, WSDG Partner/Project Manager
John Storyk, Walters-Storyk Design Group, Highland, NY, USA
Panelists: John DeLore, Chief Engineer, Stitcher (Scripps), New York, NY, USA
Judy Elliot-Brown, Walters-Storyk Design Group
Austin Thompson, Technical Director, Gimlet Media, Brooklyn, NY, USA

B02 - INNOVATIONS IN AUDIO PROCESSING
Wednesday, October 16, 1:30 pm – 3:30 pm
Room 1E07
Moderator: David Bialik, Entercom.com, New York, NY, USA
Panelists: Tim Carroll, Dolby Laboratories, San Francisco, CA, USA
Steve Dove, Wheatstone
Frank Filipetti, The Living Room, New York, NY, USA
Frank Foti, The Telos Alliance, Cleveland, Ohio, USA
Robert Orban, Orban Labs Inc., Pennsauken, NJ, USA

This session is presented in association with the AES Technical Committee on Broadcast and Online Delivery

B03 - ADVANCED AUDIO FOR SPORTS
Wednesday, October 16, 3:45 pm – 5:15 pm
Room 1E07
Moderator: Peter Wharton, Happy Robotz; SMPTE
Panelists: Mike Babbitt, Dolby Laboratories
Dennis Baxter, Dennis Baxter Sound, Gainesville, GA, USA
Karl Malone, NBC Universal, Stamford, CT, USA
Patrick Warrington, Lawo AG

B04 - AN INTIMATE EVENING WITH TESLA AND TWAIN
Wednesday, October 16, 7:00 pm and 9:00 pm
The Radio Waves Building (49 West 27th Street, NYC) Penthouse
Presented by the HEAR Now Festival in tandem with SueMedia Radio Waves Studios at 7:00 pm and 9:00 pm. Tickets are required for each performance; free with your badge. Limited to 35 people per performance
Broadcast & Online Delivery

B05 - PERFORMANCE SPACES FOR BROADCAST
Thursday, October 17, 9:00 am – 10:30 am
Room 1E07
Moderator: Paul Mclane, Radio World
Panelists: Sam Berkow, SIA Acoustics, Los Angeles, CA, USA
         John Carraciola, JVC Communications
         Gary Kline, Kline Consulting Group LLC, Atlanta, GA, USA
         Jason Ornellas, Bonneville International, Sacramento, CA, USA

B06 - LIVE BROADCASTING WITH OBJECT BASED AUDIO
Thursday, October 17, 10:45 am – 12:00 noon
Room 1E07
Presenters: Frédéric Changenet, Radio France, Paris, France
           Adrian Murtaza, Fraunhofer Institute for Integrated Circuits IIS, Erlangen, Germany
           Matthieu Parmentier, francetélévisions, Paris, France

B07 - ANATOMY OF A STREAM
Thursday, October 17, 1:00 pm – 2:30 pm
Room 1E07
Moderator: Samuel Sousa, Triton Digital, Montreal, QC, Canada
Panelists: John Kean, Kean Consultants LLC, Washington DC, USA; Cavell Mertz & Associates, Manassas VA, USA
          Robert Orban, Orban Labs Inc., Pennsauken, NJ, USA
          Ioan Rus, Telos Alliance, San Diego, CA, USA
          Mike Smith, MainStreaming, Inc., San Francisco, CA, USA

This session is presented in association with the AES Technical Committee on Broadcast and Online Delivery

B08 - ADVANCED AUDIO FOR ATSC 3.0 BROADCAST
Thursday, October 17, 2:30 pm – 4:00 pm
Room 1E07
Moderator: Skip Pizzi, NAB, Washington DC, USA
Panelists: Robert Bleidt, Fraunhofer USA Digital Media Technologies, San Jose, CA, USA
         Tim Carroll, Dolby Laboratories, San Francisco, CA, USA
         Jim Starzynski, NBCUniversal, New York, NY, USA; ATSC Group, Washington D.C.
Broadcast & Online Delivery

B09 - THE TECHNICAL HISTORY OF WNYC
Thursday, October 17, 4:00 pm – 5:30 pm
Room 1E07

Presenters:  Andy Lanset, Director of Archives, New York Public Radio
Steve Shultis, Chief Technology Officer, New York Public Radio
Jim Stagnitto, Director of Engineering, New York Public Radio

This session is presented in association with the AES Technical Committee on Broadcast and Online Delivery

B10 - TOUR OF STITCHER STUDIOS
Thursday, October 17, 7:00 pm – 8:00 pm
Stitcher Studios, 5 Bryant Park (6th Ave. & 40th St.)

Limited to 20 people; tickets available at Registration

B11 - SOUND KNOWLEDGE: LEARN HOW SMPTE ST 2110 HELPS AUDIO STAND OUT
Friday, October 18, 9:00 am – 10:30 am
Room 1E07

Moderator: Jeff Cohen, SMPTE NY Section Chair
Panelists: Andreas Hildebrand, ALC NetworX GmbH, Munich, Germany
John Mailhot, Imagine Communications, Bridgewater, NJ, USA

Co-organized by the Audio Engineering Society and the Society of Motion Picture and Television Engineers

B12 - SBE CERTIFICATION EXAMS
Friday, October 18, 9:30 am – 12:30 pm
Room TBA

B13 - METADATA— WHAT WORKS, WHAT DOES NOT AND WHY?
Friday, October 18, 10:30 am – 12:00 noon
Room 1E07

Presenters: John Kean, Kean Consultants LLC, Washington DC, USA; Cavell Mertz & Associates, Manassas VA, USA
Robert Orban, Orban Labs Inc., Pennsauken, NJ, USA
Ioan Rus, Telos Alliance, San Diego, CA, USA
Samuel Sousa, Triton Digital, Montreal, QC, Canada
Kent Terry, Dolby Laboratories Inc., San Francisco, CA, USA
**B14 - TELLING STORIES WITH SOUND: WHAT CAN AUDIO STORYTELLING LEARN FROM SOUND FOR PICTURE?**
Friday, October 18, 1:15 pm – 2:30 pm
Room 1E07

Moderator: **Rob Byers**, Minnesota Public Radio | American Public Media, Minneapolis, MN, USA

Panelists: **Lon Bender**, The Formosa Group, Los Angeles, CA, USA  
**Paula Fairfield**  
**Jocelyn Gonzales**

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**B15 - FACILITY DESIGNED FOR IP**
Friday, October 18, 2:30 pm – 4:00 pm
Room 1E07

Moderator: **Andy Butler**, PBS

Panelists: **Emeric Feldmar**, WGBH, Boston, MA, USA  
**Kent Terry**, Dolby Laboratories Inc., San Francisco, CA, USA

*Co-organized by the Audio Engineering Society and the Society of Broadcast Engineers*

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**B16 - IMMERSIVE AUDIO MIXING AND WORKFLOW FOR BROADCAST**
Friday, October 18, 4:00 pm – 5:30 pm
Room 1E07

Moderator: **Sean Richardson**, Starz Entertainment, Denver, CO, USA

Panelists: **Manuel Briand**  
**Cheryl Ottenriter**, OTT House Audio  
**Robert Reams**, Psy(x) Research  
**Andrew Roundy**, Dolby Laboratories

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**B17 - THE CURRENT WAR: DIRECTOR’S CUT**
Friday, October 18, 6:30 pm – 8:00 pm
Dolby Theater, 1350 6th Ave. at W. 55th St.

*This event is limited to 70 people. Tickets are required (free) and can be obtained at the Registration area.*

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**B18 - CONVERGENCE OF BROADCAST OVER-THE-AIR AND STREAMING DELIVERY**
Saturday, October 19, 10:15 am – 11:45 am
Room 1E07

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**E-Brief Sessions**

Moderator: **David Layer**, National Association of Broadcasters, Washington, DC, USA

Panelists: **Sayon Deb**, Consumer Technology Association  
**Jeff Detweiler**, Xperi Corp.  
**Serhad Doken**, Verizon

**B19 - EMERGENCY PREPAREDNESS AND SAFETY FOR BROADCASTERS**
Saturday, October 19, 1:30 pm – 2:45 pm  
Room 1E07

Moderator: **Scott Fybush**, Northeast Radio Watch

Panelists: **Jim Leifer**, American Tower, Boston, MA, USA  
**Howard Price**  
**Tom Ray**, Tom Ray Broadcast Consulting LLC

*This session is co-presented with SBE, the Society of Broadcast Engineers. This session is presented in association with the AES Technical Committee on Broadcast and Online Delivery*

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**E-BRIEF SESSIONS**

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<td>Posters: Recording and Production</td>
<td>Friday, Oct. 18 3:30 pm – 5:00 pm South Concourse A</td>
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<td>EB-05</td>
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<td>Spatial Audio</td>
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<td>EB-07</td>
<td>Audio Signal Processing</td>
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E-Brief Sessions

EB-08  Applications in Audio  Saturday, Oct. 19
       3:30 pm – 4:30 pm
       Room 1E11

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Session EB1  RECORDING AND PRODUCTION
Friday, Oct. 18, 9:00 am – 10:00 am
Room 1E11

Chair:  Tomasz Zernicki, Zylia sp. z o.o., Poznan, Poland

9:00 am

EB1-1  Recording and Mixing of Classical Music Using Non-Adjacent Spherical Microphone Arrays and Audio Source Separation Algorithms—Eduardo Patricio, Mateusz Skrok, Tomasz Zernicki, Zylia sp. z o.o., Poznan, Poland

Engineering Brief 525

9:15 am

EB1-2  Exploring Preference for Multitrack Mixes Using Statistical Analysis of MIR and Textual Features—Joseph Colonel, Joshua D. Reiss, Queen Mary University of London, London, UK

Engineering Brief 526

9:30 am

EB1-3  Machine Learning Multitrack Gain Mixing of Drums—Dave Moffat, Mark Sandler, Queen Mary University of London, London, UK

Engineering Brief 527

9:45 am

EB1-4  Why Microphone Arrays Are Not Better than Single-Diaphragm Microphones with Regard to Their Single Channel Output Quality—Helmut Wittek, Hannes Dieterle, SCHOEPS Mikrofone GmbH, Karlsruhe, Germany

[Presentation only; not in E-Library]

10:00 am

EB1-4  Predicting Objective Difficulty in Peak Identification Task of Technical Ear Training—Atsushi Marui, Toru Kamekawa, Tokyo University of the Arts, Adachi, Tokyo, Japan

Engineering Brief 565
E-Brief Sessions

Session EB2 – POSTERS: APPLICATIONS IN AUDIO
Friday, Oct. 18, 9:00 am – 10:30 am
South Concourse A

9:00 am

EB2-1 Personal Audio Systems in Car Cabin Using Loudspeaker Array Based on Measured Transfer Functions with Spectral Smoothing—Yefeng Cai,¹,² Chao Ye,¹,² Dengyong Ma,¹,² Yongsheng Mu,¹,² Jianming Zhou,² Guoqiang Chai²
¹ Colsonic Electronics Co., Ltd., Suzhou, China
² Suzhou Sonavox Electronics Co., Ltd., Suzhou, China

Engineering Brief 528

9:00 am

EB2-2 A Latency Measurement Method for Networked Music Performances—Robert Hupke¹, Sripathi Sridhar², Andrea Genoese², Marcel Nophut¹, Stephan Preihs¹, Tom Beyer², Agnieszka Roginska², Jürgen Peissig¹
¹ Leibniz Universität Hannover, Hannover, Germany
² New York University, New York, NY, USA

Engineering Brief 529

9:00 am

EB2-3 An Investigation into the Effectiveness of Room Adaptation Systems: Listening Test Results—Pei Yu, Ziyun Liu, Shufeng Zhang, Yong Shen, Nanjing University, Nanjing, Jiangsu Province, China

Engineering Brief 530

9:00 am

EB2-4 Evaluating Four Variants of Sine Sweep Techniques for Their Resilience to Noise in Room Acoustic Measurements—Eric Segerstrom¹, Ming-Lun Lee², Steve Philbert²
¹ Rensselaer Polytechnic Institute, Troy, NY, USA
² University of Rochester, Rochester, NY, USA

Engineering Brief 531

9:00 am

EB2-5 Perceptually Affecting Electrical Properties of Headphone Cable—Factor Hunting Approach—Akihiko Yoneya, Nagoya Institute of Technology, Nagoya, Aichi-pref., Japan

Engineering Brief 532

9:00 am

EB2-6 An Investigation into the Location and Number of Microphone Measurements Necessary for Efficient Active Control of Low-Frequency Sound Fields in Listening

27
E-Brief Sessions

Rooms—Tom Bell,1,2 Filippo Maria Fazi2
1 Bowers & Wilkins, Southwater, West Sussex, UK
2 University of Southampton, Southampton, Hampshire, UK

Presentation only; not in E-Library

9:00 am

EB2-7 Measuring Speech Intelligibility Using Head-Oriented Binaural Room Impulse Responses—Allison Lam,1 Ming-Lun Lee,2 Steve Philbert2
1 Tufts University, Medford, MA, USA
2 University of Rochester, Rochester, NY, USA

Engineering Brief 533

9:00 am

EB2-8 Compensation Filters for Excess Exciter Excursion on Flat-Panel Loudspeakers—David Anderson, University of Pittsburgh, Pittsburgh, PA, USA

Engineering Brief 534

Session EB3 - POSTERS—SPATIAL AUDIO
Friday, Oct. 18, 11:00 am – 12:30 pm
South Concourse A

11:00 am

EB3-1 Comparing Externalization Between the Neumann KU100 Versus Low Cost DIY Binaural Dummy Head—Kelley DiPasquale, SUNY Potsdam, Potsdam, NY, USA

Engineering Brief 535

11:00 am

EB3-2 SALTE Pt. 1: A Virtual Reality Tool for Streamlined and Standardized Spatial Audio Listening Tests—Daniel Johnston, Benjamin Tsui, Gavin Kearney, University of York, York, UK

Engineering Brief 536

11:00 am

EB3-3 SALTE Pt. 2: On the Design of the SALTE Audio Rendering Engine for Spatial Audio Listening Tests in VR—Tomasz Rudzki, Chris Earnshaw, Damian Murphy, Gavin Kearney, University of York, York, UK

Engineering Brief 537

11:00 am

EB3-4 Mixed Reality Collaborative Music—Andrea Genovese,
E-Brief Sessions

Marta Gospodarek, Agnieszka Roginska, New York University, New York, NY, USA
Presentation only; not in E-Library

11:00 am

EB3-5 Calibration of a Reconfigurable Multichannel Loudspeaker System with an Ambisonic Microphone—Steve Philbert, Ming-Lun Lee, Mark F. Bocko, University of Rochester, Rochester, NY, USA
Presentation only; not in E-Library

11:00 am

EB3-6 Field Report: Immersive Recording of a Wind Ensemble Using Height Channels and Delay Compensation for a Realistic Playback Experience—Hyunjoung Yang, Alexander Dobson, Richard King, McGill University, Montreal, Quebec, Canada; The Centre for Interdisciplinary Research in Music Media and Technology, Montreal, Quebec, Canada

Engineering Brief 538

Session EB4 - POSTERS: RECORDING AND PRODUCTION
Friday, Oct. 18, 3:30 pm – 5:00 pm
South Concourse A

3:30 pm

EB4-1 A Comparative Pilot Study and Analysis of Audio Mixing Using Logic Pro X and GarageBand for IOS—Jiayue Cecilia Wu,1 Orchisama Das,2 Vincent DiPasquale1
1 University of Colorado Denver, Denver, CO, USA
2 Center for Computer Research in Music and Acoustics (CRMA), Stanford University, Stanford, CA, USA

Engineering Brief 539

3:30 pm

EB4-2 The ANU School of Music Post-Production Suites: Design, Technology, Research, and Pedagogy—Samantha Bennett, Matt Barnes, Australian National University, Canberra, Australia

Engineering Brief 540

3:30 pm

EB4-3 A Case Study of Cultural Influences on Mixing Preference—Targeting Japanese Acoustic Major Students—Toshiki Tajima, Kazuhiko Kawahara, Kyushu University, Fukuoka, Japan

Engineering Brief 541
**E-Brief Sessions**

3:30 pm

**EB4-4**  A Dataset of High-Quality Object-Based Productions—
Giacomo Costantini,¹ Andreas Franck,¹ Chris Pike,² Jon Francombe,² James Woodcock,³ Richard J. Hughes,³ Philip Coleman,⁴ Eloise Whitmore,⁵ Filippo Maria Fazi⁵

¹ University of Southampton, Southampton, UK
² BBC Research and Development, Salford, UK
³ University of Salford, Salford, UK
⁴ University of Surrey, Guildford, Surrey, UK
⁵ Naked Productions, Manchester, UK

*Engineering Brief 542*

3:30 pm

**EB4-5**  An Open-Access Database of 3D Microphone Array Recordings—Hyunkook Lee, Dale Johnson, University of Huddersfield, Huddersfield, UK

*Engineering Brief 543*

**Session EB5 - TRANSDUCERS**

Saturday, Oct. 19, 9:00 am – 11:30 am

Room 1E11

Chair: Alexander Voishvillo, JBL/Harman Professional Solutions, Northridge, CA, USA

9:00 am

**EB5-1**  The Application of Graphene Oxide-Based Loudspeaker Membranes in 40mm Headphone Drivers—William Cardenas, Robert-Eric Gaskell, ORA Graphine Audio Inc., Montreal, Quebec, Canada

*Engineering Brief 544*

9:15 am

**EB5-2**  MEMS Loudspeakers - A New Chip-Based Technology for Ultra-Small Speakers—Fabian Stoppel,¹ Florian Niekiel,¹ Andreas Männchen,² Daniel Beer,² Bernhard Wagner⁴

¹ Fraunhofer Institute for Silicon Technology ISIT, Itzehoe, Germany;
² Fraunhofer Institute for Digital Media Technology IDMT, Ilmenau, Germany

[Presentation only; not in E-Library]

9:30 am

**EB5-3**  A Case Study on a Dynamic Driver: How Electromagnet Can Improve the Performance of a Micro Speaker—Md Mehedi, Carpenter Technology Corporation, Philadelphia, PA, USA

*Engineering Brief 545*
Alignment of Triple Chamber Eighth-Order Band-Pass Loudspeaker Systems—Hao Dong, Yong Shen, Rui Chen, Nanjing University, Nanjing, China

Analysis of a Vented-Box Loudspeaker System via the Impedance Function—James Lazar, Glenn S. Kubota, Samsung Research America, Valencia, CA, USA

Designing Listening Tests of SR/PA Systems, A Case Study—Eddy Bøgh Brixen, EBB-consult, Smørum, Denmark; DPA Microphones, Allerød, Denmark


Acoustic Metamaterial in Loudspeaker Systems Design—Letizia Chisari, Mario Di Cola, Paolo Martignon, Contralto Audio srl, Parma (PR), Italy

Application of Matrix Analysis for Derivation of Acoustical Impedance of Horns—Alexander Voishvillo, Balázs Kákonyi, Brian McLaughlin, Harman Professional Solutions, Northridge, CA, USA

Application of Modulated Musical Multitone Signal for Evaluation of Horn Driver Sound Quality—Alexander Voishvillo, Balázs Kákonyi, Brian McLaughlin, Harman Professional Solutions, Northridge, CA, USA
**E-Brief Sessions**

**Session EB6 - SPATIAL AUDIO**  
Saturday, Oct. 19, 2:00 pm – 3:00 pm  
Room 1E11

Chair:  
Filippo Maria Fazi, University of Southampton,  
Southampton, Hampshire, UK

2:00 pm

EB6-1 Study of the Effect of Tikhonov Regularization on the  
Low Frequency Performance of Cross-Talk Cancellation  
Systems—Filippo Maria Fazi, Eric Hamdan, Marcos  
Simón, Andreas Franck, University of Southampton,  
Southampton, Hampshire, UK  

*Presentation only; not available in E-Library*

2:15 pm

EB6-2 Subjective Comparison of Binaural Audio Rendering  
through Headphones and CTC—Jonathan Phillips,  
Marcos Simón, University of Southampton, Southampton,  
UK  

*Presentation only; not available in E-Library*

2:30 pm

EB6-3 Tetra-Speaker: Continual Evaluation of the Immersive  
Experience of a Single-Point Reproduction System—  
Parichat Songmuang, New York University, New York, NY,  
USA  

*Engineering Brief 553*

2:45 pm

EB6-4 Tetrahedral Microphones: An Effective A/B Main  
System—Alexander Dobson, Wieslaw Woszczyk, McGill  
University, Montreal, QC, Canada  

*Engineering Brief 554*

**Session EB7 - AUDIO SIGNAL PROCESSING**  
Saturday, Oct. 19, 2:30 pm – 4:15 pm  
Room 1E10

Chair:  
Dave Moffat, Queen Mary University London,  
London, UK

2:30 pm

EB7-1 Realistic Procedural Sound Synthesis of Bird Song Using  
Particle Swarm Optimization—Jorge Zúñiga, Joshua D.  
Reiss, Queen Mary University of London, London, UK  

*Engineering Brief 555*
E-Brief Sessions

2:45 pm

EB7-2 Multi-Scale Auralization for Multimedia Analytical Feature Interaction—Nguyen Le Thanh Nguyen,1 Hyunhwan Lee,1 Joseph Johnson,1 Mitsunori Ogihara,1
Gang Ren,1 James Beauchamp2
1 University of Miami, Coral Gables, FL, USA
2 University of Illinois at Urbana-Champaign, Urbana, IL, USA

Engineering Brief 556

3:00 pm

EB7-3 Perceptually Motivated Hearing Loss Simulation for Audio Mixing Reference—Angeliki Mourgela,1 Trevor Agus,2
Joshua D. Reiss1
1 Queen Mary University of London, London, UK
2 Queens University Belfast, Belfast, UK

Engineering Brief 557

3:15 pm

EB7-4 Modeling between Partial Components for Musical Timbre Imitation and Migration—Angela C. Kihiko,1 Mitsunori Ogihara,2 Gang Ren,2 James Beauchamp3
1 Spelman College, Atlanta, GA, USA
2 University of Miami, Coral Gables, FL, USA
3 University of Illinois at Urbana-Champaign, Urbana, IL, USA

Engineering Brief 558

3:30 pm

EB7-5 Coherence as an Indicator of Distortion for Wide-Band Audio Signals such as M-Noise and Music—Merlijn van Veen, Roger Schwenke, Meyer Sound Laboratories, Berkeley, CA, USA

Engineering Brief 559

3:45 pm

EB7-6 Fast Time Domain Stereo Audio Source Separation Using Fractional Delay Filters—Oleg Golokolenkao, Gerald Schuller, Ilmenau University of Technology, Ilmenau, Germany

Engineering Brief 560

4:00 pm

EB7-7 Line Array Optimization through Innovative Multichannel Filtering—Paolo Martignon, Mario Di Cola, Letizia Chisari, Contralto Audio srl, Casoli, Italy

Engineering Brief 561
E-Brief Sessions

Session EB8 - APPLICATIONS IN AUDIO
Saturday, Oct. 19, 3:30 pm – 4:30 pm
Room 1E11

Chair: Sunil G. Bharitkar, HP Labs., Inc., San Francisco, CA, USA

3:30 pm

EB8-1 Vibrary: A Consumer-Trainable Music Tagging Utility—Scott Hawley, Jason Bagley, Brett Porter, Daisey Traynham
1 Belmont University, Nashville, TN, USA
2 Art+Logic, Pasadena, CA, USA

Engineering Brief 562

3:45 pm

EB8-2 Casualty Accessible and Enhanced (A&E) Audio: Trialling Object-Based Accessible TV Audio—Lauren Ward, Matthew Paradis, Ben Shirley, Laura Russon, Robin Moore, Rhys Davies
1 University of Salford, Salford, UK
2 BBC R&D, North Lab, Salford, UK
3 BBC R&D, South Lab, London, UK
4 BBC Studios, Cardiff, Wales, UK

Engineering Brief 563

4:00 pm

EB8-3 Generative Modeling of Metadata for Machine Learning Based Audio Content Classification—Sunil G. Bharitkar, HP Labs., Inc., San Francisco, CA, USA

Engineering Brief 564

4:15 pm

EB8-4 Individual Headphone Equalization at the Eardrum with New Apps for Computers and Cellphones—David Griesinger, David Griesinger Acoustics, Cambridge, MA, USA

[Presentation only; not available in E-Library]
**ELECTRONIC DANCE MUSIC**

**EDM-01  Mixing EDM Masterclass**
Thursday, Oct. 17  
2:00 pm – 3:00 pm  
Room 1E12

**EDM-02  Art & Origins of Sampling**
Thursday, Oct. 17  
3:15 pm – 4:15 pm  
Room 1E12

**EDM-03  Remixed—Breaking the Illusion**
Thursday, Oct. 17  
4:30 pm – 5:30 pm  
Room 1E12

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**EDM01 - MIXING EDM MASTERCLASS**
Thursday, October 17, 2:00 pm – 3:00 pm  
Room 1E12

Presenter: Ariel Borujow, Westward Music Group Inc.

**EDM02 - THE ART & ORIGINS OF SAMPLING: FROM VINYL TO DAW; FROM HIP-HOP TO DANCE MUSIC**
Thursday, October 17, 3:15 pm – 4:15 pm  
Room 1E12

Moderator: Nate Mars, Electronic Music Collective

**EDM03 - REMIXING—BREAKING THE ILLUSION**
Thursday, October 17, 4:30 pm – 5:30 pm  
Room 1E12

Presenter: Rick Snoman, Dance Music Productio, Manchester, UK

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**ELECTRONIC INSTRUMENT DESIGN & APPLICATIONS**

**EI-01  Drum Machines, Groove Boxes, Etc.**
Thursday, Oct. 17  
9:00 am –10:00 am  
Room 1E17

**EI-02  Not Your Everyday Filters**
Thursday, Oct. 17  
10:15 am –11:15 am  
Room 1E17
Electronic Instrument Design

EI-03 Modular Synthesizer Designs
Thursday, Oct. 17
2:15 pm – 3:45 pm
Room 1E17

EI-04 Embedded Computing and Instrument Design
Thursday, Oct. 17
4:00 pm – 5:30 pm
Room 1E17

EI01 - DRUM MACHINES, GROOVE-BOXES, AND TEMPO-BASED ELECTRONIC INSTRUMENTS
Thursday, October 17, 9:00 am – 10:00 am
Room 1E17
Presenters: Michael Bierylo, Berklee College of Music, Brookline, MA, USA
Dave Rossum

EI02 - NOT YOUR EVERYDAY FILTERS
Thursday, October 17, 10:15 am – 11:45 am
Room 1E17
Presenter: Jayant Datta, Audio Precision, Beaverton, OR, USA
This session is presented in association with the AES Technical Committee on Signal Processing

EI03 - MODULAR SYNTHESIZER DESIGNS - FROM THE PAST TO FUTURE DIRECTIONS
Thursday, October 17, 2:15 pm – 3:45 pm
Room 1E17
Moderator: Michael Bierylo, Berklee College of Music, Brookline, MA, USA
Panelists: Andrew Ikenberry
Dave Rossum

EI04 - EMBEDDED COMPUTING AND INSTRUMENT DESIGN
Thursday, October 17, 4:00 pm – 5:30 pm
Room 1E17
Moderator: Paul Lehrman, Tufts University, Medford, MA, USA
Panelists: Richard Graham
Andrew Ikenberry
Denis Labrecque
Teresa Marrin Nakra
Dave Rossum
GAME AUDIO & XR

GA-01  4-pi Reverb Effects for In-Game Sounds Wednesday, Oct. 16 9:00 am – 10:30 am Room 1E06

GA-02  Abbey Road Spatial Audio Forum Wednesday, Oct. 16 9:15 am – 10:45 am Room 1E08

GA-03  Interactive AR Audio Using Spark Wednesday, Oct. 16 10:45 am – 11:45 am Room 1E13

GA-04  Real-Time Mixing and Monitoring Practices Wednesday, Oct. 16 1:30 pm – 2:30 pm Room 1E13

GA-05  Spatial Storytelling in Games Wednesday, Oct. 16 2:45 pm – 4:15 pm Room 1E08

GA-06  Simulating Real World Acoustic Phenomena Wednesday, Oct. 16 4:30 pm – 5:30 pm Room 1E08

GA-07  MPEG-H 3D Audio Goes VR Thursday, Oct. 17 9:00 am – 10:30 am Room 1E21

GA-08  Intro to Machine Learning for Game Audio Thursday, Oct. 17 10:15 am – 11:45 am Room 1E08

GA-09  Audio Productivity in Mixed Reality Thursday, Oct. 17 1:15 pm – 2:15 pm Room 1E13

GA-10  Lessons Learned in Game Audio Thursday, Oct. 17 2:15 pm – 3:15 pm Room 1E13

GA-11  Microtalks Thursday, Oct. 17 3:30 pm – 4:30 pm Room 1E13

GA-12  Not Playing Games with Your Business Friday, Oct. 18 9:00 am – 10:30 am Room 1E13

GA-13  Borderlands 3—Wild West of Atoms Friday, Oct. 18 10:30 am – 12:00 noon Room 1E06

GA-14  Just Cause 4 OST: Creative Collaboration Friday, Oct. 18 1:30 pm – 2:30 pm Room 1E17

GA-15  Binaural Audio—Just a 360/VR Geek Thing? Saturday, Oct. 20 1:30 pm – 3:00 pm Room 1E08
Game Audio & XR

GA01 - 4-Pi REVERB EFFECTS FOR IN-GAME SOUNDS
Wednesday, October 16, 9:00 am – 10:30 am
Room 1E06

Presenters: Tomoya Kishi, CAPCOM Co., Ltd., Japan
Steve Martz, THX Ltd., San Rafael, CA, USA
Masataka Nakahara, ONFUTURE Ltd., Tokyo, Japan;
SONA Corp., Tokyo, Japan
Kazutaka Someya, beBlue Co., Ltd., Tokyo, Japan

This session is presented in association with the AES Technical Committee on Audio for Games and AES Technical Committee on Spatial Audio

GA02 - ABBEY ROAD SPATIAL AUDIO FORUM—MUSIC PRODUCTION IN VR AND AR
Wednesday, October 16, 9:15 am – 10:45 am
Room 1E08

Chair: Gavin Kearney, University of York, York, UK
Panelists: Stephen Barton, Afterlight Inc.
Axel Drioli, Philharmonia Orchestra, London, UK
Oliver Kadel, 1.618 Digital, London, UK; University of West London, London, UK
Muki Kulhan, Muki International, UK
Hyunkook Lee, University of Huddersfield, Huddersfield, UK
Mirek Stiles, Abbey Road Studios, London, UK

This session is presented in association with the AES Technical Committee on Audio for Games

GA03 - INTERACTIVE AR AUDIO USING SPARK
Wednesday, October 16, 10:45 am – 11:45 am
Room 1E13

Moderator: Dren McDonald, Facebook
Panelists: Kristi Boeckmann
Matt Nichols, Facebook
Grey Robbins, Facebook

This session is presented in association with the AES Technical Committee on Audio for Games

GA04 - REAL-TIME MIXING AND MONITORING BEST PRACTICES FOR VIRTUAL, MIXED, AND AUGMENTED REALITY
Wednesday, October 16, 1:30 pm – 2:30 pm
Room 1E13
Game Audio & XRs

Moderator: **Scott Selfon**, Audio Experiences Lead, Facebook Reality Labs (Oculus Research)

*This session is presented in association with the AES Technical Committee on Audio for Games*

**GA05 - SPATIAL STORYTELLING IN GAMES**

Wednesday, October 16, 2:45 pm – 4:15 pm
Room 1E08

Moderator: **Rob Bridgett**, Eidos Montreal, Montreal, Canada

Panelists: **Jason Kanter**, Audio Director, Avalanche Studios, New York, NY, USA  
**Phillip Kovats**, WWS Sound, Sony Interactive Entertainment  
**Mark Petty**, Gearbox Software

**GA06 - SIMULATING REAL WORLD ACOUSTIC PHENOMENA: FROM GRAPHICS TO AUDIO**

Wednesday, October 16, 4:30 pm – 5:30 pm
Room 1E08

Presenter: **Christophe Tornieri**, Audiokinetic

*This session is presented in association with the AES Technical Committee on Audio for Games and AES Technical Committee on Spatial Audio*

**GA07 - MPEG-H 3D AUDIO GOES VR**

Thursday, October 17, 9:00 am – 10:30 am
Room 1E21

Chair: **Jürgen Herre**, International Audio Laboratories Erlangen, Erlangen, Germany; Fraunhofer IIS, Erlangen, Germany

Panelists: **Adrian Murtaza**, Fraunhofer Institute for Integrated Circuits IIS, Erlangen, Germany  
**Nils Peters**, Qualcomm, Advanced Tech R&D, San Diego, CA, USA

*This session is presented in association with the AES Technical Committee on Coding of Audio Signals*

**GA08 - INTRODUCTION TO MACHINE LEARNING FOR GAME AUDIO**

Thursday, October 17, 10:15 am – 11:45 am
Room 1E08

Presenter: **John Byrd**, Gigantic Software, Santa Ana, CA, USA

*This session is presented in association with the AES Technical Committee on Audio for Games*
**Game Audio & XR**

**GA09 - AUDIO PRODUCTIVITY IN MIXED REALITY**  
Thursday, October 17, 1:15 pm – 2:15 pm  
Room 1E13

Presenters:  
**Sally Kellaway**, Microsoft, Seattle, WA, USA  
**Joe Kelly**, Microsoft, Seattle, WA, USA

*This session is presented in association with the AES Technical Committee on Audio for Games*

**GA10 - LESSONS LEARNED IN GAME AUDIO**  
Thursday, October 17, 2:15 pm – 3:15 pm  
Room 1E13

Presenter:  
**Alex Wilmer**, Wilmer Sound, San Francisco, CA, USA  
**Sae Wilmer**, Wilmer Sound, San Francisco, CA, USA

**GA11 - Micro Talks**  
Thursday, October 17, 3:30 pm – 4:30 pm  
Room 1E13

Presenters:  
**Sally Kellaway**, Microsoft, Seattle, WA, USA  
**Steve Martz**, THX Ltd., San Rafael, CA, USA

*This session is presented in association with the AES Technical Committee on Audio for Games*

**GA12 - NOT PLAYING GAMES WITH YOUR BUSINESS**  
Friday, October 18, 9:00 am – 10:30 am  
Room 1E13

Chair:  
**Alex Wilmer**, Wilmer Sound, San Francisco, CA, USA

Panelists:  
**Jason Kanter**, Audio Director, Avalanche Studios  
**Adam Levensen**, Sr. Dir. of Business Development & Marketing, Waves Audio  
**Michael Sinterniklaas**, President, NYAV Post

**GA13 - BORDERLANDS 3—THE WILD WEST OF ATMOS**  
Friday, October 18, 10:30 am – 12:00 noon  
Room 1E06

Presenters:  
**Brian Fieser**, Gearbox Software  
**Julian Kwaneski**, Bay Area Sound  
**Mark Petty**, Gearbox Software  
**William Storkson**, Bay Area Sound

*This session is presented in association with the AES Technical Committee on Audio for Games*

**GA14 - JUST CAUSE 4 OST: CREATIVE COLLABORATION**  
Friday, October 18, 1:30 pm – 2:30 pm  
Room 1E17
Hip-Hop and R&B

Presenter: Zach Abramson, YouTooCanWoo

This session is presented in association with the AES Technical Committee on Audio for Games

GA15 - BINAURAL AUDIO - JUST A 360/VR GEEK THING OR FUTURE AUDIO ENTERTAINMENT?
Saturday, October 19, 1:30 pm – 3:00 pm
Room 1E08

Chair: Tom Ammermann, New Audio Technology GmbH, Hamburg, Germany

Panelists: David Miles Huber, Seattle, WA, USA
Andres A. Mayo, Andres Mayo Mastering & Audio Post, Buenos Aires, Argentina
Agnieszka Roginska, New York University, New York, NY, USA
Thilo Schaller, SUNY Buffalo, Buffalo, NY, USA

HIP-HOP AND R&B

HH-01 Chopped and Looped
(An AES Special Event)
Thursday, Oct. 17
9:30 am – 11:00 am
Room 1E15+16

HH-02 The Soul of an R&B Mix
Friday, Oct. 18
2:30 pm – 3:30 pm
Room 1E12

HH-03 Studio Design for Hip-Hop and R&B
Friday, Oct. 18
3:30 pm – 4:30 pm
Room 1E12

HH-04 Engineering for The Abstract
Friday, Oct. 18
4:30 pm – 5:30 pm
Room 1E12

HH01 - CHOPPED AND LOOPED—INSIDE THE ART OF SAMPLING FOR HIP-HOP (AN AES SPECIAL EVENT)
Thursday, October 17, 9:30 am – 11:00 am
Room 1E15+16

Moderator: Paul “Willie Green” Womack, Willie Green Music, Brooklyn, NY, USA

Panelists: Just Blaze, Jay-Z, Kanye West
Breakbeat Lou, Ultimate Breaks and Beats
Hank Shocklee, Shocklee Entertainment, New York, NY, USA
Hip-Hop and R&B

_Ebonie Smith_, Atlantic Records/Hamilton Cast Album

**HH02 - THE SOUL OF AN R&B MIXS**
Friday, October 18, 2:30 pm – 3:30 pm
Room 1E12

Moderator:  _Paul “Willie Green” Womack_, Willie Green Music, Brooklyn, NY, USA
Panelists:  _Prince Charles Alexander_, Berklee College of Music, Boston, MA, USA
_Neal Pogue_, Neal H Pogue, Atlanta, GA, USA

**HH03 - STUDIO DESIGN FOR HIP-HOP AND R&B**
Friday, October 18, 3:30 pm – 4:30 pm
Room 1E12

Moderators:  _David Malekpour_, Professional Audio Design, Inc.
_Paul “Willie Green” Womack_, Willie Green Music, Brooklyn, NY, USA
Panelists:  _Larrance Dopson_, _James Fauntleroy_, _Frank Hendler_, _Rick St. Hilaire_

**HH04 - ENGINEERING FOR THE ABSTRACT: RECORDING Q-TIP AND A TRIBE CALLED QUEST**
Friday, October 18, 4:30 pm – 5:30 pm
Room 1E12

Presenter:  _Gloria Kaba_, Little Underground

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**HISTORICAL SESSIONS**

**H-01**  Integrating History into Modern Curriculum
Wednesday, Oct. 16
9:15 am – 10:15 am
Room 1E12

**H-02**  Building Success through Your Team
Wednesday, Oct. 16
5:00 pm – 6:00 pm
Room 1E21

**H-03**  Rudy Van Gelder: A Legacy
Thursday, Oct. 17
1:15 pm – 2:45 pm
Room 1E08

**H-04**  Spike Jones: Proposterous Precision
Thursday, Oct. 17
2:45 pm – 4:15 pm
Room 1E08
Historical Sessions

H-05  Tom Dowd Film  Thursday, Oct. 17  
5:30 pm – 7:00 pm  
Dolby Theater

H-06  African Americans  Friday, Oct. 18  
in Audio (An AES  
Special Event)  
9:30 am – 11:00 am  
Room 1E15+16

H-07  Compression Driver DNA  Friday, Oct. 18  
11:15 am – 12:15 pm  
Room 1E10

H01 - INTEGRATING HISTORY INTO THE MODERN AUDIO CURRICULUM  
Wednesday, October 16, 9:15 am – 10:15 am  
Room 1E12

Chair:  Scott Burgess, University of Colorado Denver, Denver, CO, USA

Panelists:  Gabe Herman, The University of Hartford, The Hartt School, Hartford, CT, USA  
Susan Schmidt Horning, St. John’s University  
Jessica Thompson, Jessica Thompson Audio, Berkeley, CA, USA

H02 - BUILDING SUCCESS THROUGH YOUR TEAM—VIEWS FROM THE FIRST WOMAN BROADCAST ENGINEER  
Wednesday, October 16, 5:00 pm – 6:00 pm  
Room 1E21

Presenter:  Pamela Gibson

H03 - RUDY VAN GELDER: A LEGACY IN AUDIO ENGINEERING  
Thursday, October 17, 1:15 pm – 2:45 pm  
Room 1E08

Presenters:  Richard Capeless, Deep Groove Mono, New York, NY, USA  
Michael Cuscuna, Mosaic Records  
Don Sickler, Second Floor Music  
Maureen Sickler, Second Floor Music

H04 - SPIKE JONES: PREPOSTEROUS PRECISION  
Thursday, October 17, 2:45 pm – 4:15 pm  
Room 1E08

Chair:  Mike Wisland, Utah Valley University, Orem, UT, USA

Panelists:  Arlen Card, Utah Valley University, Orem, UT, USA  
Skip Craig
Historical Sessions

Leslie Ann Jones, Recording Engineer and Producer, Director of Music Recording and Scoring, Skywalker Sound, San Rafael, CA, USA
Emily Taggart

H05 - LIMITED ENGAGEMENT SCREENING, TOM DOWD AND THE LANGUAGE OF MUSIC
Thursday, October 18, 5:30 pm – 7:00 pm
Dolby Theater, 1350 Ave. of the Americas

H06 - AFRICAN AMERICANS IN AUDIO (AN AES SPECIAL EVENT)
Friday, October 18, 9:30 am — 11:00 am
Room 1E15+16

Moderator: Leslie Gaston-Bird, Mix Messiah Productions, Brighton, UK; Institute of Contemporary Music Performance, London, UK

Panelists: Prince Charles Alexander, Berklee College of Music, Boston, MA, USA
Abhita Austin, Audio Engineer-Producer and Founder of The Creator’s Suite
James Henry, recording engineer/producer and audio educator
Ebonie Smith, Atlantic Records/Hamilton Cast Album
Paul “Willie Green” Womack, Willie Green Music, Brooklyn, NY, USA
Bobby Wright, Hampton University

H07 - COMPRESSION DRIVER DNA: THE ORIGIN AND SEEDS OF PROGRESS
Friday, October 18, 11:15 am – 12:15 pm
Room 1E10

Presenters: Thomas Dunker
Bjørn Kolbrek, Celestion, Ipswich, UK

IMMERSIVE & SPATIAL AUDIO

IS-01 Music Production in Immersive Formats
Wednesday, Oct. 16
10:45 am – 12:00 noon
Room 1E06
<table>
<thead>
<tr>
<th>IS-02</th>
<th>Reproduction and Evaluation</th>
<th>Wednesday, Oct. 16</th>
<th>4:15 pm – 5:45 pm</th>
<th>Room 1E17</th>
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<tbody>
<tr>
<td>IS-03</td>
<td>ISSP</td>
<td>Thursday, Oct. 17</td>
<td>10:15 am – 11:15 am</td>
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<tr>
<td>IS-04</td>
<td>3D Audio Philosophies for Commercial Music</td>
<td>Thursday, Oct. 17</td>
<td>4:30 pm – 5:30 pm</td>
<td>Room 1E08</td>
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<tr>
<td>IS-05</td>
<td>Building Listening Tests in VR</td>
<td>Friday, Oct. 18</td>
<td>9:00 am – 10:00 am</td>
<td>Room 1E08</td>
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<tr>
<td>IS-06</td>
<td>6DoF Case Studies</td>
<td>Friday, Oct. 17</td>
<td>2:15 pm – 3:15 pm</td>
<td>Room 1E08</td>
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<tr>
<td>IS-07</td>
<td>6DoF Sound Capture and Playback</td>
<td>Friday, Oct. 17</td>
<td>3:30 pm – 4:30 pm</td>
<td>Room 1E08</td>
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<tr>
<td>IS-08</td>
<td>Ambisonics Tools: Session 1</td>
<td>Saturday, Oct. 19</td>
<td>9:00 am – 12:00 noon</td>
<td>Room 1E13</td>
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<tr>
<td>IS-09</td>
<td>Producing Hi-Quality 360/3D VR Videos</td>
<td>Saturday, Oct. 19</td>
<td>9:00 am – 10:30 am</td>
<td>Room 1E08</td>
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<tr>
<td>IS-10</td>
<td>Music Production for Dolby Atmos</td>
<td>Saturday, Oct. 19</td>
<td>11:30 am – 12:30 pm</td>
<td>Room 1E06</td>
</tr>
</tbody>
</table>

IS01 - ISSP: IMMERSIVE SOUND SYSTEM PANNING.
AN INTERACTIVE SOFTWARE APPLICATION AND TOOLS FOR LIVE PERFORMANCES
Wednesday, October 16, 10:30 am – 12:00 noon
Room 1E06

Presenter:  **Ianina Canalis**, National University of Lanús, Buenos Aires, Argentina

IS02 - MUSIC PRODUCTION IN IMMERSIVE FORMATS:
ALTERNATIVE PERSPECTIVES
Wednesday, October 16, 10:45 am – 12:00 noon
Room 1E17

Presenters:  **Thomas Aichinger**, scopeaudio, Austria
**Zachary Bresler**, University of Agder, Kristiansand S, Vest-Agder, Norway
**Eve Klein**, University of Queensland, Brisbane, Queensland, Australia
**Jo Lord**, University of West London, London, UK
Immersion & Spatial Audio

**IS03 - REPRODUCTION AND EVALUATION OF SPATIAL AUDIO THROUGH SPEAKERS**

Wednesday, October 16, 4:15 pm – 5:45 pm  
Room 1E06

Presenters:  
- Juan Simon Calle Benitez, THX Ltd., San Francisco, CA, USA  
- Patrick Flanagan, THX Ltd.  
- Gavin Kearney, University of York, York, UK  
- Nils Peters, Qualcomm, Advanced Tech R&D, San Diego, CA, USA  
- Marcos Simon, AudioScenic, Southampton UK

*This session is presented in association with the AES Technical Committee on Audio for Games and AES Technical Committee on Spatial Audio*

**IS04 - 3D AUDIO PHILOSOPHIES & TECHNIQUES FOR COMMERCIAL MUSIC**

Thursday, October 17, 4:30 pm – 5:30 pm  
Room 1E08

Presenter:  
- Bt Gibbs, Skyline Entertainment and Publishing, Morgan Hill, CA, USA; Tool Shed Studios, Morgan Hill, CA, USA

**IS05 - BUILDING LISTENING TESTS IN VR**

Friday, October 18, 9:00 am – 10:00 am  
Room 1E08

Presenters:  
- Gavin Kearney, University of York, York, UK  
- Tomasz Rudzki, University of York, York, UK  
- Benjamin Tsui, University of York, York, UK

*This session is presented in association with the AES Technical Committee on Audio for Games*

**IS06 - CAPTURING REALITY WITH THE USE OF SPATIAL SOUND AND HIGH ORDER AMBISONICS—ETHNOGRAPHIC AND SIX DEGREES OF FREEDOM (6DOF) CASE STUDIES**

Friday, October 18, 2:15 pm – 3:15 pm  
Room 1E08

Moderator:  
- Tomasz Zernicki, Zylia sp. z o.o., Poznan, Poland

Panelists:  
- Florian Grond, McGill University, Montreal, Canada  
- Eduardo Patricio, Zylia Sp. z o.o., Poznan, Poland  
- Zack Settel, University of Montreal, Montreal, Quebec, Canada

**IS07 - SIX-DEGREES-OF-FREEDOM (6DOF) SOUND CAPTURE AND PLAYBACK USING MULTIPLE HIGHER
ORDER AMBISONICS (HOA) MICROPHONES
Friday, October 18, 3:30 pm – 4:30 pm
Room 1E08
Presenters: Lukasz Januszkiewicz, Zylia Sp. z o.o., Poznan, Poland
            Eduardo Patricio, Zylia Sp. z o.o., Poznan, Poland
            Tomasz Zernicki, Zylia Sp. z o.o., Poznan, Poland

IS08 - AMBISONICS TOOLS FOR IMMERSIVE AUDIO
CAPTURE AND POST-PRODUCTION
Saturday, October 19, 9:00 am – 12:00 noon
Room 1E13
Presenters: Ianina Canalis, National University of Lanú, Buenos Aires, Argentina
            Brian Glasscock, Sennheiser
            Andres A. Mayo, Andres Mayo Mastering & Audio Post, Buenos Aires, Argentina
            Martin Muscatello, 360 Music Lab

Preregistration is required for this event. Tickets are $75 (member) and $125 (non-member) and can be purchased on-line when you register for the convention All Access Badge. Seating is limited.

IS09 - PRODUCING HIGH-QUALITY 360/3D VR CONCERT VIDEOS WITH 3D IMMERSIVE AUDIO
Saturday, October 19, 9:00 am – 10:30 am
Room 1E08
Presenters: Ming-Lun Lee, University of Rochester, Rochester, NY, USA
            Steve Philbert, University of Rochester, Rochester, NY, USA

IS10 - MUSIC PRODUCTION FOR DOLBY ATMOS
Thursday, October 17, 10:30 am – 11:30 am
Room 1E06
Presenter: Lasse Nipkow, Silent Work LLC, Zurich, Switzerland

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NETWORKED AUDIO

NA-01 Solution-Based Approaches
       Wednesday, Oct. 16
       9:00 am – 10:30 am
       Room 1E13

NA-02 An Introductory Tutorial to AES70
       Wednesday, Oct. 16
       2:45 pm – 4:15 pm
       Room 1E13
NA01 - SOLUTION-BASED APPROACHES FOR NETWORKED AUDIO IN LIVE PRODUCTION
Wednesday, October 16, 9:00 am – 10:30 am
Room 1E13
Moderator: Dan Ferrisi, Sound & Communications, Port Washington, NY, USA
Panelists: Guido Esch, New Motion Touring
Genio Kronauer, L-Acoustics, Marcoussis, France
Morten Lave, Morten Lave, Toronto, ON, Canada
Patrice Lavoie, Solotech
Rob Mele, Meyer Sound Laboratories
Jamie Pollock, Kore Audio Design LLC

NA02 - AN INTRODUCTORY TUTORIAL TO AES70
Wednesday, October 16, 2:45 pm – 4:15 pm
Room 1E13
Presenters: Jeff Berryman, OCA Alliance
Simon Jones, Focusrite
Ethan Wetzell, OCA Alliance

NA03 - WHAT AUDIO ENGINEERS NEED TO KNOW ABOUT MEDIA NETWORKS
Saturday, October 19, 10:45 am – 12:15 pm
Room 1E08
Presenter: Patrick Killianey, Audinate, Buena Park, CA, USA

NA04 - NETWORK AUDIO STRATEGIES: CHARTING SOFTWARES, HARDWARES, INTERNET REQUIREMENTS
Saturday, October 19, 1:30 pm – 2:30 pm
Room 1E21
Presenter: Sarah Weaver, NowNet Arts, Inc.
NA05 - NETWORK MEDIA OPEN SPECIFICATIONS (NMOS)—
HOW THEY RELATE TO AUDIO NETWORKING
Saturday, October 19, 2:45 pm – 4:15 pm
Room 1E21

Presenter:  Andreas Hildebrand, ALC NetworX GmbH, Munich, Germany

OFF-SITE EVENTS

B-04  An Intimate Evening with Tesla and Twain
      Wednesday, Oct. 16
      7:00 pm & 9:00 pm
      Radio Waves Building

H-05  Tom Dowd Film
      Thursday, Oct. 17
      5:30 pm – 7:00 pm
      Dolby Theater

B-10  Tour of Stitcher Studios
      Thursday, Oct. 17
      7:00 pm – 8:00 pm
      Stitcher Studios

TT-01 Quad Recording Studio
     Friday, Oct. 18
     11:00 am – 2:00 pm
     Quad Studios

B-17  The Current War
     Friday, Oct. 18
     6:30 pm – 8:00 pm
     Dolby Theater

B04 - AN INTIMATE EVENING WITH TESLA AND TWAIN
Wednesday, October 16, 7:00 pm and 9:00 pm
The Radio Waves Building (49 West 27th Street, NYC) Penthouse

Presented by the HEAR Now Festival in tandem with SueMedia Radio Waves Studios at 7:00 pm and 9:00 pm. Tickets are required for each performance; free with your badge. Limited to 35 people per performance

H05 - LIMITED ENGAGEMENT SCREENING, TOM DOWD AND THE LANGUAGE OF MUSIC
Thursday, October 18, 5:30 pm – 7:00 pm
Dolby Theater, 1350 Ave. of the Americas

Seating is limited to 75 people and by advance ticket only.

NOTE: No food or drink (including water) is allowed in the Dolby Theater, so come hydrated and fed.

Doors will open shortly after 5, the program will start promptly at
5:30. Movie at 5:35pm, Q&A will follow at 7:05; event ends at 8:00 sharp.

Presented by the AES Historical Track in conjunction with Language of Music Films LLC and Dana Dowd

B10 - TOUR OF STITCHER STUDIOS
Thursday, October 17, 7:00 pm – 8:00 pm
Stitcher Studios, 5 Bryant Park (6th Ave. & 40th St.)

Limited to 20 people; tickets available at Registration

TT01 - TOUR OF QUAD RECORDING STUDIOS
Friday, October 18, 11:00 am – 2:00 pm
Quad Recording Studios, 723 7th Ave.

Limited to 30 people; tickets available at Registration

B17 - THE CURRENT WAR: DIRECTOR’S CUT
Friday, October 18, 6:30 pm – 8:00 pm
Dolby Theater, 1350 6th Ave. at W. 55th St.

This event is limited to 70 people. Tickets are required (free) and can be obtained at the Registration area.

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PAPER SESSIONS

P-01 Applications in Audio  Wednesday, Oct. 16
9:00 am –11:30 am
Room 1E10

P-02 Audio Signal Processing  Wednesday, Oct. 16
9:00 am –11:30 am
Room 1E11

P-03 Posters: Transducers  Wednesday, Oct. 16
10:30 am – 12:00 noon
South Concourse A

P-04 Room Acoustics  Wednesday, Oct. 16
1:30 pm – 5:00 pm
Room 1E10

P-05 Transducers  Wednesday, Oct. 16
1:30 pm – 5:00 pm
Room 1E11

P-06 Posters: Audio Signal Processing  Wednesday, Oct. 16
3:00 pm – 4:30 pm
South Concourse A

P-07 Perception  Thursday, Oct. 17
9:00 am –12:00 noon
<table>
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<th>Paper Sessions</th>
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| **P-08** Recording, Production, and Live Sound | Room 1E10  
Thursday, Oct. 17  
9:00 am – 12:00 noon  
Room 1E11 |
| **P-09** Posters: Applications in Audio | Room 1E11  
Thursday, Oct. 17  
10:00 am – 11:30 am  
South Concourse A |
| **P-10** Spatial Audio—Part 1 | Room 1E10  
Thursday, Oct. 17  
1:15 pm – 4:15 pm  
Room 1E10 |
| **P-11** Semantic Audio | Room 1E11  
Thursday, Oct. 17  
1:15 pm – 2:45 pm  
Room 1E11 |
| **P-12** Posters: Room Acoustics | Room 1E11  
Thursday, Oct. 17  
3:00 pm – 4:30 pm  
South Concourse A |
| **P-13** Spatial Audio—Part 2 | Room 1E10  
Friday, Oct. 18  
9:00 am – 11:00 am  
Room 1E10 |
| **P-14** Spatial Audio—Part 3 | Room 1E10  
Friday, Oct. 18  
1:45 pm – 4:15 pm  
Room 1E10 |
| **P-15** Audio Education | Room 1E10  
Saturday, Oct. 19  
9:00 am – 11:30 am  
Room 1E10 |
| **P-16** Posters: Spatial Audio | Room 1E10  
Saturday, Oct. 19  
10:30 am – 12:00 noon  
South Concourse A |
| **P-17** Product Development | Room 1E10  
Saturday, Oct. 20  
3:00 pm – 5:30 pm  
Room 1E09 |
| **P-18** Posters: Perception | Room 1E10  
Saturday, Oct. 20  
3:00 pm – 4:30 pm  
South Concourse A |

**Session P1 - APPLICATIONS IN AUDIO**  
Wednesday, Oct. 16, 9:00 am – 11:30 am  
Room 1E10

Chair: **Kevin Bastyr**, Harman International, Novi, MI, USA

9:00 am

**P1-1 Personal Sound Zones: A Comparison between Frequency and Time Domain Formulations in a Transportation Context**—*Lucas Vindrola,1,2 Manuel Melon,1 Jean-Christophe Chamard,2 Bruno Gazengel,1 France; Guy Plantier1*

1 LAUM, Le mans Université, Les Mans, France
Paper Sessions

9:30 am
P1-2 Mitigating the Effect of In-Vehicle Road Noise Cancellation on Music Playback—Tao Feng, Kevin Bastyr, Harman International, Novi, MI, USA
Convention Paper 10217

10:00 am
P1-3 Effect of a Global Metronome on Ensemble Accuracy in Networked Music Performance—Robert Hupke, Lucas Beyer, Marcel Nophut, Stephan Preihs, Jürgen Peissig, Leibniz Universität Hannover, Hannover, Germany
Convention Paper 10218

10:30 am
P1-4 Evaluation of Multichannel Audio in Automobiles versus Mobile Phones—Fesal Toosy, Muhammad Sarwar Ehsan, University of Central Punjab, Lahore, Pakistan
Convention Paper 10219

11:00 am
P1-5 Realizing An Acoustic Vector Network Analyzer—Marcus MacDonell, Jonathan Scott, University of Waikato, Hamilton, Waikato, New Zealand
Convention Paper 10220

Session P2 - AUDIO SIGNAL PROCESSING
Wednesday, Oct. 16, 9:00 am – 12:00 noon
Room 1E11

Chair: Scott Hawley, Belmont University, Nashville, TN, USA

9:00 am
P2-1 Analyzing and Extracting Multichannel Sound Field—Pei-Lun Hsieh, Ambidio, Glendale, CA, USA
Convention Paper 10221

9:30 am
P2-2 Profiling Audio Compressors with Deep Neural Networks—Scott Hawley,1 Benjamin Colburn,2 Stylianos Ioannis Mimalakis3
1 Belmont University, Nashville, TN, USA
Paper Sessions

2 ARiA Acoustics, Washington, DC, USA
3 Fraunhofer Institute for Digital Media Technology (IDMT), Ilmenau, Germany

Convention Paper 10222

10:00 am

P2-3 Digital Parametric Filters Beyond Nyquist Frequency—Juan Sierra, Stanford University, Stanford, CA, USA

Convention Paper 10224

10:30 am

P2-4 Using Volterra Series Modeling Techniques to Classify Black-Box Audio Effects—Ethan Hoerr, Robert C. Maher, Montana State University, Bozeman, MT, USA

Convention Paper 10225

11:00 am

P2-5 Modifying Audio Signals for Reproduction with Reduced Room Effect—Christof Faller, Illusonic GmbH, Uster, Zürich, Switzerland

Convention Paper 10226

11:30 am

P2-6 On the Similarity between Feedback/Loopback Amplitude and Frequency Modulation—Tamara Smyth, University of California, San Diego, San Diego, CA, USA

Convention Paper 10223

Session P3 - POSTERS: TRANSDUCERS
Wednesday, Oct. 16, 10:30 am – 12:00 noon
South Concourse A

10:30 am

P3-1 Acoustic Beamforming on Transverse Loudspeaker Array Constructed from Micro-Speakers Point Sources for Effectiveness Improvement in High-Frequency Range—Bartlomiej Chojnacki, Klara Jaros, Daniel Kaczor, Tadeusz Kamisinski, AGH University of Science and Technology, Cracow, Poland

Convention Paper 10227

10:30 am

P3-2 Spherical Microphone Array Shape to Improve Beamforming Performance—Sakurako Yazawa, Hiroaki Itou, Ken’ichi Noguchi, Kazunori Kobayashi, Noboru
**Paper Sessions**

*Harada, NTT Media Intelligence Laboratories, NTT Corporation, Japan*

*Convention Paper 10228*

10:30 am

P3-3  **Infinite Waveguide Termination by Series Solution in Finite Element Analysis**—Patrick Macey, PACSYS Limited, Nottingham, UK

*Convention Paper 10229*

10:30 am

P3-4  **Evaluating Listener Preference of Flat-Panel Loudspeakers**—Stephen Roessner, Michael Heilemann, Mark F. Bocko, University of Rochester, Rochester, NY, USA

*Convention Paper 10230*

10:30 am

P3-5  **Modelling of a Chip Scale Package on the Acoustic Behavior of a MEMS Microphone**—Yafei Nie, Jinqiu Sang, Chengshi Zheng, Xiaodong Li, Chinese Academy of Sciences, Beijing, China; University of Chinese Academy of Sciences, Beijing, China

*Convention Paper 10231*

10:30 am

P3-6  **Personalized and Self-Adapting Headphone Equalization Using Near Field Response**—Adrian Celestinos, Elisabeth McMullin, Ritesh Banka, Pascal Brunet, Samsung Research America, Digital Media Solutions, Valencia, CA USA

*Convention Paper 10232*

10:30 am

P3-7  **Applying Sound Equalization to Vibrating Sound Transducers Mounted on Rigid Panels**—Stefania Cecchi, Alessandro Terenzi, Francesco Piazza, Ferruccio Bettarelli

1 \ Università Politecnica della Marche, Ancona, Italy

2 Leaff Engineering, Osimo, Italy

*Convention Paper 10233*

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**Session P4 - ROOM ACOUSTICS**

Wednesday, Oct. 16, 1:30 pm – 5:00 pm

Room 1E10

Chair:  **David Griesinger**, David Griesinger Acoustics, Cambridge, MA, USA

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Paper Sessions

1:30 pm
P4-1  Use of Wavelet Transform for the Computation of Modal Decay Times in Rooms—Roberto Magalotti, 1 Daniele Ponteggia, 2
1 B&C Speakers S.p.A., Bagno a Ripoli (FI), Italy
2 Audiomatica Srl, Firenze, Italy

Convention Paper 10235

2:00 pm
P4-2  What’s Old Is New Again: Using a Physical Scale Model Echo Chamber as a Real-Time Reverberator—Kevin Delcourt, 1, 2 Franck Zagala, 2 Alan Blum, 1 Brian F. G. Katz
1 École Nationale Supérieure Louis Lumière, Saint-Denis, France
2 Sorbonne Université, Paris, Paris, France

Convention Paper 10236

2:30 pm
P4-3  Synthesis of Binaural Room Impulse Responses for Different Listening Positions Considering the Source Directivity—Ulrike Sloma, Florian Klein, Stephan Werner, Tyyson Pappachan Kannookadan, TU- Ilmenau, Ilmenau, Germany

Convention Paper 10237

3:00 pm
P4-4  Extracting the Fundamental Mode from Sound Pressure Measurements in an Acoustic Tube—Joerg Panzer, R&D Team, Salgen, Germany

Convention Paper 10238

3:30 pm
P4-5  Accurate Reproduction of Binaural Recordings through Individual Headphone Equalization and Time Domain Crosstalk Cancellation—David Griesinger, David Griesinger Acoustic, Cambridge, MA, USA

Convention Paper 10239

4:00 pm
P4-6  Concert Hall Acoustics’ Influence on the Tempo of Musical Performances—Jan Berg, Luleå University of Technology, Piteå, Sweden

Convention Paper 10240

4:30 pm
P4-7  Optimum Measurement Locations for Large-Scale Loud-
Paper Sessions

speaker System Tuning Based on First-Order Reflections Analysis—Samuel Moulin, Etienne Corteel, François Montignies, L-Acoustics, Marcoussis, France

Convention Paper 10234

Session P5 - SIGNAL PROCESSING—PART 2
Wednesday, Oct. 16, 1:30 pm – 5:00 pm
Room 1E11

Chair: Todd Welti, Harman International Inc., Northridge, CA, USA

1:30 pm

P5-1 Nonlinear Control of Loudspeaker Based on Output Flatness and Trajectory Planning—Pascal Brunet, Glenn S. Kubota, Samsung Research America, Valencia, CA, USA

Convention Paper 10241

2:00 pm

P5-2 Perceptual Assessment of Distortion in Low-Frequency Loudspeakers—Louis Fielder,1 Michael Smithers2
1 Retired, Millbrae, CA, USA
2 Dolby Laboratories, Sydney, NSW, Australia

Convention Paper 10242

2:30 pm

P5-3 Rethinking Flat Panel Loudspeakers—An Objective Acoustic Comparison of Different Speaker Categories—Benjamin Zenker, Sebastian Merchel, M. Ercan Altinsoy, TU Dresden, Dresden, Germany

Convention Paper 10243

3:00 pm

P5-4 Modelling and Measurement of Nonlinear Intermodal Coupling in Loudspeaker Diaphragm Vibrations—William Cardenas, ORA Graphine Audio Inc., Montreal, Quebec, Canada

Convention Paper 10244

3:30 pm

P5-5 Sound Capture by Microphone Vibration inside Playback Devices—Rivanaldo De Oliveira, Qualcomm Technologies, Inc., San Diego, CA, USA

Convention Paper 10245

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Paper Sessions

4:00 pm

P5-6 Low Deviation and High Sensitivity—Optimized Exciter Positioning for Flat Panel Loudspeakers by Considering Averaged Sound Pressure Equalization—Benjamin Zenker, TShanavaz Sanjay Abdul Rawoof, Sebastian Merchel, M. Ercan Altinsoy, TU Dresden, Dresden, Germany

Convention Paper 10246

4:30 pm

P5-7 A Comparison of Test Methodologies to Personalize Headphone Sound Quality—Todd Welti, Omid Khonsaripour, Sean Olive, Dan Pye, Harman International, Northridge, CA, USA

Convention Paper 10247

Session P6 - POSTERS: AUDIO SIGNAL PROCESSING
Thursday, Oct. 16, 3:00 pm – 4:30 pm
South Concourse A

3:00 pm

P6-1 Modal Representations for Audio Deep Learning—Travis Skare, Jonathan S. Abel, Julius O. Smith, III, Stanford University, Stanford, CA, USA

Convention Paper 10248

3:00 pm

P6-2 Distortion Modeling of Nonlinear Systems Using Ramped-Sines and Lookup Table—Paul Mayo, Wesley Bulla

1 University of Maryland, College Park, MD, USA
2 Belmont University, Nashville, TN, USA

Convention Paper 10249

3:00 pm

P6-3 An Open Audio Processing Platform Using SoC FPGAs and Model-Based Development—Trevor Vannoy, Tyler Davis, Connor Dack, Dustin Sobrero, Ross Snider

1 Montana State University, Bozeman, MT, USA
2 Flat Earth Inc., Bozeman, MT, USA

Convention Paper 10250

3:00 pm

P6-4 Objective Measurement of Stereophonic Audio Quality in the Directional Loudness Domain—Pablo Delgado, Jürgen Herre

1,2
Paper Sessions

1 International Audio Laboratories Erlangen, Erlangen, Germany
2 Fraunhofer Institute for Integrated Circuits IIS, Erlangen, Germany

Convention Paper 10251

3:00 pm

P6-5 Detection of the Effect of Window Duration in an Audio Source Separation Paradigm—Ryan Miller, Wesley Bulla, Eric Tarr, Belmont University, Nashville, TN, USA

Convention Paper 10252

3:00 pm

P6-6 Use of DNN-Based Beamforming Applied to Different Microphone Array Configurations—Tae Woo Kim, Nam Kyun Kim, Geon Woo Lee, Inyoung Park, Hong Kook Kim, Gwangju Institute of Science and Tech (GIST), Gwangju, Korea

Convention Paper 10253

3:00 pm

P6-7 Deep Neural Network Based Guided Speech Bandwidth Extension—Konstantin Schmidt,1 Bernd Edler1,2
1 Friedrich-Alexander-University (FAU), Erlangen, Germany;
2 Fraunhofer Institute for Integrated Circuits IIS, Erlangen, Germany

Convention Paper 10254

3:00 pm

P6-8 Analysis of the Sound Emitted by Honey Bees in a Beehive—Stefania Cecchi, Alessandro Terenzi, Simone Orcioni, Francesco Piazza, Universitá Politecnica della Marche, Ancona (AN), Italy

Convention Paper 10255

3:00 pm

P6-9 Improvement of DNN-Based Speech Enhancement with Non-Normalized Features by Using an Automatic Gain Control—Linjuan Cheng, Chengshi Zheng, Renhua Peng, Xiaodong Li, Key Laboratory of Noise and Vibration Research, Institute of Acoustics, Chinese Academy of Sciences, Beijing, China; University of Chinese Academy of Sciences, Beijing, China

Convention Paper 10256
Session P7 - PERCEPTION
Thursday, Oct. 17, 9:00 am – 12:00 noon
Room 1E10

Chair: Elisabeth McMullin, Samsung Research America, Valencia, CA, USA

9:00 am

P7-1 A Binaural Model to Estimate Room Impulse Responses from Running Signals and Recordings—Jonas Braasch, David Dahlbom, Nate Keil, Rensselaer Polytechnic Institute, Troy, NY, USA

Convention Paper 10257

9:30 am

P7-2 Describing the Audible Effects of Nonlinear Loudspeaker Distortion—Elisabeth McMullin, Pascal Brunet, Zhonggran Wang, Samsung Research America, Valencia, CA, USA

Convention Paper 10258

10:00 am

P7-3 Spatial Auditory Masking for Three-Dimensional Audio Coding—Masayuki Nishiguchi, Kodai Kato, Kanji Watanabe, Koji Abe, Shouichi Takane, Akita Prefectural University, Yurihonjo, Akita, Japan

Convention Paper 10259

10:30 am

P7-4 Investigation of Masking Thresholds for Spatially Distributed Sound Sources—Sascha Dick, Rami Sweidan, Jürgen Herre

1 International Audio Laboratories Erlangen, a joint institution of Universität Erlangen-Nürnberg and Fraunhofer IIS, Erlangen, Germany
2 University of Stuttgart, Stuttgart, Germany

Convention Paper 10260

11:00 am

P7-5 An Attempt to Elicit Horizontal and Vertical Auditory Precedence Percepts without Pinnae Cues—Wesley Bulla, Paul Mayo

1 Belmont University, Nashville, TN, USA
2 University of Maryland, College Park, MD, USA

Convention Paper 10261
Paper Sessions

11:30 am

P7-6  Perceptual Weighting to Improve Coding of Harmonic Signals—Elias Nemer, Zoran Fejzo, Jeff Thompson, XPERI/DTS, Calabasas, CA, USA

Convention Paper 10262

Session P8 - RECORDING, PRODUCTION, AND LIVE SOUND
Thursday, Oct. 17, 9:00 am – 11:30 am
Room 1E11

Chair: Wieslaw Woszczyk, McGill University, Montreal, QC, Canada

9:00 am

P8-1  Microphone Comparison: Spectral Feature Mapping for Snare Drum Recording—Matthew Cheshire, Ryan Stables, Jason Hockman, Birmingham City University, Birmingham, UK

Convention Paper 10263

9:30 am

P8-2  An Automated Approach to the Application of Reverberation—Dave Moffat, Mark Sandler, Queen Mary University of London, London, UK

Convention Paper 10264

10:00 am

P8-3  Subjective Graphical Representation of Microphone Arrays for Vertical Imaging and Three-Dimensional Capture of Acoustic Instruments, Part II—Bryan Martin, Denis Martin, Richard King, Wieslaw Woszczyk, Montreal, QC, Canada; Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT), Montreal, QC, Canada;

Convention Paper 10265

10:30 am

P8-4  Filling The Space: The Impact of Convolution Reverberation Time on Note Duration and Velocity in Duet Performance—James Weaver, Mathieu Barthet, Elaine Chew

1 Queen Mary Universit London, London, UK
2 CNRS-UMR9912/STMS (IRCAM), Paris, France

Convention Paper 10266

11:00 am

P8-5  The Effects of Spectators on the Speech Intelligibility-
Paper Sessions

ity Performance of Sound Systems in Stadia and Other Large Venues—Peter Mapp,1 Ross Hammond2
1 Peter Mapp Associates - Colchester, Essex, UK;
2 University of Derby, Derby, Derbyshire

Convention Paper 10267

Session P9 - POSTERS: APPLICATIONS IN AUDIO
Thursday, Oct. 17, 9:00 am – 10:30 am
South Concourse A

9:00 am

P9-1 Analyzing Loudness Aspects of 4.2 Million Musical Albums in Search of an Optimal Loudness Target for Music Streaming—Eelco Grimm, HKU University of the Arts, Utrecht, Netherlands

Convention Paper 10268

9:00 am

P9-2 Audio Data Augmentation for Road Objects Classification—Ohad Barak, Nizar Sallem, Mentor Graphics, Mountain View, CA, USA

Convention Paper 10269

9:00 am

P9-3 Is Binaural Spatialization the Future of Hip-Hop?—Kierian Turner,1 Amandine Pras1,2
1 University of Lethbridge, Lethbridge, AB, Canada
2 School for Advanced Studies in the Social Sciences (EHESS), Paris, France

Convention Paper 10270

9:00 am

P9-4 Alignment and Timeline Construction for Incomplete Analogue Audience Recordings of Historical Live Music Concerts—Thomas Wilmering, Florian Thalmann, Mark Sandler, Queen Mary University of London, London, UK

Convention Paper 10271

9:00 am

P9-5 Noise Robustness Automatic Speech Recognition with Convolutional Neural Network and Time Delay Neural Network—Jie Wang,1 Dunze Wang,1 Yunda Chen,1 Xun Lu,2 Chengshi Zheng3
1 Guangzhou University, Guangzhou, China
2 Power Grid Planning Center, Guangdong Power Grid Company, Guangdong, China

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**Paper Sessions**

3 Institute of Acoustics, Chinese Academy of Sciences, Beijing, China  

*Convention Paper 10272*

Session P10 - SPATIAL AUDIO, PART 1  
Thursday, Oct. 17, 1:15 pm – 4:15 pm  
Room 1E10

Chair: Sungyoung Kim, Rochester Institute of Technology, Rochester, NY, USA

1:15 pm  

P10-1 Use of the Magnitude Estimation Technique in Reference-Free Assessments of Spatial Audio Technology—Alex Brandmeyer, Dan Darcy, Lie Lu, Richard Graff, Nathan Swedlow, Poppy Crum, Dolby Laboratories, San Francisco, CA, USA  

*Convention Paper 10273*

1:45 pm  

P10-2 Subjective Assessment of the Versatility of Three-Dimensional Near-Field Microphone Arrays for Vertical and Three-Dimensional Imaging—Bryan Martin,1,2 Jack Kelly,1,3 Brett Leonard3,4  
1 McGill University, Montreal, QC, Canada  
2 Centre for Interdisciplinary Research in Music Media and Technology (CIRMNT), Montreal, QC, Canada  
3 University of Indianapolis, Indianapolis, IN, USA  
4 BLPaudio, Indianapolis, IN, USA  

*Convention Paper 10274*

2:15 pm  

P10-3 Defining Immersion: Literature Review and Implications for Research on Immersive Audiovisual Experiences—Sarvesh Agrawal,1,2 Adèle Simon,1 Søren Bech,1,3 Klaus Bærentsen,4 Søren Forchhammer2  
1 Bang & Olufsen a/s, Struer, Denmark  
2 Technical University of Denmark, Lyngby, Denmark  
3 Aalborg University, Aalborg, Denmark  
4 Aarhus University, Aarhus, Denmark  

*Convention Paper 10275*

2:45 pm  


*Convention Paper 10276*
**Paper Sessions**

3:15 pm

**P10-5** Investigating Room-Induced Influences on Immersive Experience Part II: Effects Associated with Listener Groups and Musical Excerpts—Sungyoung Kim,¹ Shuichi Sakamoto²

¹ Rochester Institute of Technology, Rochester, NY, USA
² Tohoku University, Sendai, Japan

*Convention Paper 10277*

3:45 pm

**P10-6** Comparison Study of Listeners’ Perception of 5.1 and Dolby Atmos—Tomas Oramus, Petr Neubauer, Academy of Performing Arts in Prague, Prague, Czech Republic

*Convention Paper 10278*

Session P11 - SEMANTIC AUDIO
Thursday, Oct. 17, 1:15 pm – 2:45 pm
Room 1E11

Chair: Robert C. Maher, Montana State University, Bozeman, MT, USA

1:15 pm

**P11-1** Impact of Statistical Parameters of Late Reverberation on the Instantaneous Frequencies of Reverberant Audio—Sarah R. Smith, Mark F. Bocko, University of Rochester, Rochester, NY, USA

*Convention Paper 10279*

1:45 pm

**P11-2** Precise Temporal Localization of Sudden Onsets in Audio Signals Using the Wavelet Approach—Yuxuan Wan, Yijia Chen, Keegan Yi Hang Sim, Lijia Wu, Xianzheng Geng, Kevin Chau, Hong Kong University of Science and Technology, Clean Water Bay, Hong Kong

*Convention Paper 10280*

2:15 pm

**P11-3** Forensic Comparison of Simultaneous Recordings of Gunshots at a Crime Scene—Robert C. Maher, Ethan Hoerr, Montana State University, Bozeman, MT, USA

*Convention Paper 10281*
Paper Sessions

Session P12 - POSTERS: ROOM ACOUSTICS
Thursday, October 17, 3:00 pm – 4:30 pm
South Concourse A

3:00 pm

P12-1  Transparent Office Screens Based on Microperforated Foil—Krzysztof Brawata, Katarzyna Baruch, Tadeusz Kamiński, Bartłomiej Chojnacki
1 Gorycki&Szynderman Sp. z o.o., Cracow, Poland
2 AGH University of Science and Technology, Cracow, Poland

Convention Paper 10282

3:00 pm

P12-2  A Novel Spatial Impulse Response Capture Technique for Realistic Artificial Reverberation in the 22.2 Multichannel Audio Format—Jack Kelly, Richard King, Wiesław Woszczyk, McGill University, Montreal, QC, Canada, The Centre for Interdisciplinary Research in Music Media and Technology, Montreal, Quebec, Canada

Convention Paper 10283

3:00 pm

P12-3  Impulse Response Simulation of a Small Room and in situ Measurements Validation—Daniel Núñez-Solano, Virginia Puyana-Romero, Cristian Ordóñez-Andrade, Luis Bravo-Moncayo, Cristian Garzón-Pico, Universidad de Las Américas, Quito, Ecuador

Convention Paper 10284

3:00 pm

P12-4  Calculation of Directivity Patterns from Spherical Microphone Array Recordings—Carlotta Anemüller, Jürgen Herre, International Audio Laboratories Erlangen, Erlangen, Germany

Convention Paper 10285

Session P13 - SPATIAL AUDIO, PART 2
Friday, Oct. 18, 9:00 am – 11:00 pm
Room 1E10

Chair: Doyuen Ko, Belmont University, Nashville, TN, USA

9:00 am

P13-1  Simplified Source Directivity Rendering in Acoustic Virtual Reality Using the Directivity Sample Combination—Georg Götz, Ville Pulkki, Aalto University, Espoo, Finland
**Paper Sessions**

*Convention Paper 10286*

9:30 am

**P13-2**  
Classification of HRTFs Using Perceptually Meaningful Frequency Arrays—*Nolan Eley*, New York University, New York, NY, USA

*Convention Paper 10288*

10:00 am

**P13-3**  
An HRTF Based Approach towards Binaural Sound Source Localization—*Kaushik Sunder,¹ Yuxiang Wang²*  
¹ Embody VR, Mountain View, CA, USA  
² Rochester Institute of Technology, Rochester, NY, USA

*Convention Paper 10289*

10:30 am

**P13-4**  
Physical Controllers vs. Hand-and-Gesture Tracking: Control Scheme Evaluation for VR Audio Mixing—*Justin Bennington, Doyuen Ko*, Belmont University, Nashville, TN, USA

*Convention Paper 10290*

Session P14 - SPATIAL AUDIO, PART 3  
Friday, Oct. 18, 1:45 pm – 4:15 pm  
Room 1E10

Chair:  *Christof Faller*, Illusonic GmbH, Uster, Zürich, Switzerland; EPFL, Lausanne, Switzerland

1:45 pm

**P14-1**  
Measurement of Oral-Binaural Room Impulse Response by Singing Scales—*Munhum Park*, King Mongkut’s Institute of Technology Ladkrabang, Bangkok, Thailand

*Convention Paper 10291*

2:15 pm

**P14-2**  
Effects of Capsule Coincidence in FOA Using MEMS: Objective Experiment—*Gabriel Zalles*, University of California, San Diego, La Jolla, CA, USA

*Convention Paper 10292*

2:45 pm

**P14-3**  
Spatial B-Format Equalization—*Alexis Favrot, Christof Faller*, Illusonic GmbH, Uster, Zürich, Switzerland

*Convention Paper 10293*
3:15 pm

**P14-4** Exploratory Research into the Suitability of Various 3D Input Devices for an Immersive Mixing Task—Diego I Quiroz Orozco, Denis Martin, McGill University, Montreal, QC, Canada; Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT), Montreal, QC, Canada

*Convention Paper 10294*

3:45 pm

**P14-5** The 3DCC Microphone Technique: A Native B-format Approach to Recording Musical Performance—Kathleen “Ying-Ying” Zhang, Paul Geluso, New York University, New York, NY, USA

*Convention Paper 10295*

**Session P15 - AUDIO EDUCATION**

Saturday, Oct. 19, 9:00 am – 11:30 am

Room 1E10

Chair: Amandine Pras, Digital Audio Arts, University of Lethbridge, Lethbridge, Alberta, Canada; School for Advanced Studies in the Social Sciences, Paris, France

9:00 am

**P15-1** Production Processes of Pop Music Arrangers in Bamako, Mali—Amandine Pras,1,2 Kierian Turner,1 Toby Bol,1 Emmanuelle Olivier1,2,3  
1 Digital Audio Arts, University of Lethbridge, Lethbridge, Alberta, Canada  
2 School for Advanced Studies in the Social Sciences, Paris, France  
3 National Centre for Scientific Research, Paris, France

*Convention Paper 10296*

9:30 am

**P15-2** Towards a Pedagogy of Multitrack Audio Resources for Sound Recording Education—Kirk McNally,1 Paul Thompson,2 Ken Scott2  
1 University of Victoria, Victoria, BC, Canada  
2 Leeds Beckett University, Leeds, West Yorkshire, UK

*Convention Paper 10297*

10:00 am

**P15-3** The History of Record Production as a Learning Element for Audio Education—The Particular Case of the Recording Arts Program at the ITM in Medellín Colombia—Daniel Marín Jaramillo,1 Carlos Andrés Caballero Parra1,2
Paper Sessions

1 Instituto Tecnológico Metropolitano, Medellin, Colombia
2 Universidad Politécnica de Valencia, València, Spain

Convention Paper 10298

10:30 am

P15-4 Mental Representations in Critical Listening Education: A Preliminary Study—Stephane Elmosnino, University of Technology Sydney, Sydney, New South Wales, Australia

Convention Paper 10299

11:00 am

P15-5 The Generation Gap—Perception and Workflow of Analog vs. Digital Mixing—Ryland Chambers-Moranz,1 Amandine Pras,1,2 Nate Thomas1
1 Digital Audio Arts, University of Lethbridge, Lethbridge, Alberta, Canada
2 School for Advanced Studies in the Social Sciences, Paris, France

Convention Paper 10300

Session P16 - POSTERS: SPATIAL AUDIO
Saturday, Oct. 19, 10:30 am – 12:00 noon
South Concourse A

10:30 am

P16-1 Calibration Approaches for Higher Order Ambisonic Microphone Arrays—Charles Middlicott,1,2 Bruce Wiggins1
1 University of Derby, Derby, Derbyshire, UK
2 Sky Labs Brentwood, Essex, UK

Convention Paper 10301

10:30 am

P16-2 A Qualitative Investigation of Soundbar Theory—Julia Perla, Wesley Bulla, Belmont University, Nashville, TN, USA

Convention Paper 10302

10:30 am

P16-3 The Effect of the Grid Resolution of Binaural Room Acoustic Auralization on Spatial and Timbral Fidelity—Dale Johnson, Hyunkook Lee, University of Huddersfield, Huddersfield, UK

Convention Paper 10303

10:30 am

P16-4 A Compact Loudspeaker Matrix System to Create 3D
Paper Sessions

Sounds for Personal Uses—Aya Saito, Takahiro Nemoto, Akira Saji, Jie Huang, University of Aizu, Aizuwakamatsu City, Japan

Convention Paper 10304

10:30 am

P16-5 Evaluation of Spatial Audio Quality of the Synthesis of Binaural Room Impulse Responses for New Object Positions—Stephan Werner, Florian Klein, Clemens Müller, Technical University of Ilmenau, Ilmenau, Germany

Convention Paper 10305

10:30 am

P16-6 Investigating the Importance of Height Channels of Cinema Surround Systems—Ahmed Shalabi, Overdub Productions, London, UK

Convention Paper 10306

10:30 am

P16-7 An Adaptive Crosstalk Cancellation System Using Microphones at the Ears—Tobias Kabzinski, Peter Jax, RWTH Aachen University, Aachen, Germany

Convention Paper 10307

10:30 am

P16-8 Immersive Sound Reproduction in Real Environments Using a Linear Loudspeaker Array—Valeria Bruschi, Nicola Ortolani, Stefania Cecchi, Francesco Piazza, Università Politecnica della Marche, Ancona (AN), Italy

Convention Paper 10308

10:30 am

P16-9 The Influences of Microphone System, Video, and Listening Position on the Perceived Quality of Surround Recording for Sport Content—Aimee Moulson, Hyunkook Lee, University of Huddersfield, Huddersfield, UK

Convention Paper 10309

10:30 am

P16-10 Sound Design and Reproduction Techniques for Co-Located Narrative VR Experiences—Marta Gospodarek, Andrea Genovese, Dennis Dembeck, Corinne Brenner, Agnieszka Roginska, Ken Perlin, New York University, New York, NY, USA

Convention Paper 10287
Session P17 - PRODUCT DEVELOPMENT
Saturday, Oct. 19, 3:00 pm – 5:30 pm
Room 1E09

Chair: Phil Brown, Dolby Laboratories, San Francisco, CA, USA

3:00 pm

P17-1 Summed Efficiency-Method for Efficient Vented Box Speaker Design—Niels Elkjær Iversen,1,2 Theis Christensen,2 Anders Bjørnskov,2 Lars Petersen2
1 Technical University of Denmark, Kogens Lyngby, Denmark
2 ICEpower, Søborg, Denmark
Convention Paper 10310

3:30 pm

P17-2 Loudspeaker Port Design for Optimal Performance and Listening Experience—Andri Bezzola, Allan Devantier, Elisabeth McMullin, Samsung Research America, Valencia, CA USA
Convention Paper 10311

4:00 pm

P17-3 A Method for Three-Dimensional Horn Geometry Optimization—Christoper Smolen, Jerome Halley, QSC Audio Products LLC, Costa Mesa, CA, USA
Convention Paper 10312

4:30 pm

P17-4 A Perceptually-Motivated Headphone Transparency Algorithm—Josh Lando, Alex Brandmeyer, Phil Brown, Alan Seefeldt, Andy Jaspar, Dolby Laboratories, San Francisco, CA, USA
Convention Paper 10313

5:00 pm

P17-5 Temporal Envelope-Based Psychoacoustic Modelling for Evaluating Non-Waveform Preserving Audio Codecs—Steven van de Par,1,2 Sascha Disch,3,4 Andreas Niedermeier,3 Elena Burdiel Pérez,3 Bernd Edler4
1 University of Oldenburg, Oldenburg, Germany
2 Fraunhofer HSA, Oldenburg, Germany
3 Fraunhofer IIS, Erlangen, Germany
4 Friedrich Alexander University, Erlangen-Nürnberg, Germany
Convention Paper 10314
**Paper Sessions**

Session P18 - POSTERS: PERCEPTION  
Saturday, Oct. 19, 3:00 pm – 4:30 pm  
South Concourse A

3:00 pm  
P18-1  Comparison of Human and Machine Recognition of Electric Guitar Types—Renato Profeta, Gerald Schuller, Ilmenau University of Technology, Ilmenau, Germany  
*Convention Paper 10315*

3:00 pm  
P18-2  Preference for Harmonic Intervals Based on Overtone Content of Complex Tones—Benjamin Fox, Wesley Bulla, Belmont University, Nashville, TN, USA  
*Convention Paper 10316*

3:00 pm  
P18-3  Just Noticeable Difference for Dynamic Range Compression via “Limiting” of a Stereophonic Mix—Christopher Hickman, Wesley Bulla, Belmont University, Nashville, TN, USA  
*Convention Paper 10317*

3:00 pm  
P18-4  Discrimination of High-Resolution Audio without Music—Yuki Fukuda, Shunsuke Ishimitsu, Hiroshima City University, Hiroshima, Japan  
*Convention Paper 10318*

3:00 pm  
P18-5  Subjective Evaluation of Multichannel Audio and Stereo on Cell Phones—Fesal Toosy, Muhammad Sarwar Ehsan, University of Central Punjab, Lahore, Pakistan  
*Convention Paper 10319*

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**PRODUCT DEVELOPMENT**

PD-01  The Predictable Horn  
Wednesday, Oct. 16  
9:00 am –10:30 am  
Room 1E09

PD-02  Directivity Optimization Passive Loudspeaker System  
Wednesday, Oct. 16  
10:30 am –12:00 noon  
Room 1E09
PD-03  Patents and Product Development  Wednesday, Oct. 16  2:45 pm – 4:15 pm  Room 1E09

PD-04  Microphone Electroacoustics  Wednesday, Oct. 16  4:30 pm – 5:45 pm  Room 1E09

PD-05  Vendor Event 1: Audio Precision  Wednesday, Oct. 16  5:30 pm – 6:00 pm  Demo Room 1E01

PD-06  Can DSP Fix a Bad Speaker?  Thursday, Oct. 17  9:00 am – 10:30 am  Room 1E09

PD-07  Introducing A2B  Thursday, Oct. 17  10:45 am – 12:15 pm  Room 1E09

PD-08  Vendor Event 2: Analog Devices  Thursday, Oct. 17  12:15 pm – 1:30 pm  Demo Room 2D03

PD-09  Does Automotive Audio Need a Systems Approach?  Thursday, Oct. 17  1:30 pm – 3:00 pm  Room 1E09

PD-10  Diagnostics for Production Vehicle Audio Systems  Thursday, Oct. 17  3:15 pm – 4:30 pm  Room 1E09

PD-11  Product Management Modeling  Friday, Oct. 18  9:00 am – 10:30 am  Room 1E09

PD-12  Advanced Materials for Audio Products  Friday, Oct. 18  10:45 am – 12:15 pm  Room 1E09

PD-13  Vendor Event 3: Menlo Scientific  Friday, Oct. 18  12:15 pm – 1:30 pm  Demo Room 457

PD-14  Deep Learning and AI for Audio Applications  Friday, Oct. 18  1:30 pm – 3:00 pm  Room 1E09

PD-15  Hardware Development Using JIRA  Friday, Oct. 18  3:15 pm – 4:45 pm  Room 1E09

PD-16  How to Add AES70 to Your Products  Saturday, Oct. 19  9:00 am – 10:30 am  Room 1E09

PD-17  Using Gage R&R Tools  Saturday, Oct. 19  10:45 am – 12:15 pm  Room 1E09

PD-18  Acoustic Metamaterial in LS Systems  Saturday, Oct. 19  1:30 pm – 3:00 pm  Room 1E09
Product Development

PD01 - THE PREDICTABLE HORN: THE WHY, HOW, AND WHEN OF HORN SIMULATION
Wednesday, October 16, 9:00 am – 10:30 am
Room 1E09

Presenters:  Mark Dodd, Celestion, Woodbridge, Suffolk, UK
Charles Hughes, Excelsior Audio, Gastonia, NC, USA;
AFMG - Berlin, Germany
Bjørn Kolbrek, Celestion, Ipswich, UK
David Murphy, Krix Loudspeakers, Henley Beach, South Australia, Australia

PD02 - DIRECTIVITY OPTIMIZATION OF A PASSIVE LOUDSPEAKER SYSTEM
Wednesday, October 16, 10:30 am – 12:00 noon
Room 1E09

Presenter:  Charles Hughes, Excelsior Audio, Gastonia, NC, USA;
AFMG, Berlin, Germany

PD03 - PATENTS AND PRODUCT DEVELOPMENT
Wednesday, October 16, 2:45 pm – 4:15 pm
Room 1E09

Presenters:  Joseph Reid, Perkins Coie, San Diego, CA, USA
John Strawn, S Systems, Inc., Larkspur, CA, USA
Babak Tehranchi, Perkins Coie, San Diego, CA, USA

PD04 - MICROPHONE ELECTROACOUSTICS
Wednesday, October 16, 4:30 pm – 5:45 pm
Room 1E09

Presenter:  Christopher Struck, CJS Labs, San Francisco, CA, USA

PD05 - VENDOR EVENT 1: AUDIO PRECISION
Wednesday, October 16, 5:30 pm – 6:00 pm
Demo Room 1E01

PD06 - CAN DSP FIX A BAD SPEAKER?
Thursday, October 17, 9:00 am – 10:30 am
Room 1E09

Presenters:  Jonathan Gerbet, Klippel GmbH, Dresden, Germany

PD07 - INTRODUCING A2B—A LOW-LATENCY DIGITAL AUDIO BUS STANDARD
Thursday, October 17, 10:45 am – 12:15 pm
Room 1E09

Presenters:  Joseph Beauchemin, Analog Devices
Denis Labrecque, DeLab Consulting, Half Moon Bay, CA, USA
**Product Development**

**PD08 - VENDOR EVENT 2: ANALOG DEVICES**  
Thursday, October 17, 12:15 pm – 1:30 pm  
Demo Room 2D03

**PD09 - DOES AUTOMOTIVE AUDIO NEED A SYSTEMS APPROACH?**  
Thursday, October 17, 1:30 pm — 3:00 pm  
Room 1E09

Presenters:  
- John Busenitz, Bose Corporation, Framingham, MA, USA  
- Patrick Dennis, Nissan Technical Center North America, Farmington Hills, MI, USA

*This session is presented in association with the AES Technical Committee on Automotive Audio*

**PD10 - DIAGNOSTICS FOR PRODUCTION VEHICLE AUDIO SYSTEMS**  
Thursday, October 17, 3:15 pm – 4:30 pm  
Room 1E09

Presenter:  
- Steven Hutt, Equity Sound Investments, Bloomington, IN, USA

*This session is presented in association with the AES Technical Committee on Loudspeakers and Headphones*

**PD11 - Product Management Modeling**  
Friday, October 18, 9:00 am – 10:30 am  
Room 1E09

Presenter:  
- Scott Leslie, PD Squared, Irvine, CA USA

**PD12 - ADVANCED MATERIALS FOR AUDIO PRODUCTS**  
Friday, October 18, 10:45 am – 12:15 pm  
Room 1E09

Presenter:  
- Michael Klasco, Menlo Scientific Ltd., Richmond, CA, USA

**PD13 - VENDOR EVENT 3: MENLO SCIENTIFIC**  
Friday, October 18, 12:15 pm – 1:30 pm  
Demo Room 457

**PD14 - DEEP LEARNING AND AI FOR AUDIO APPLICATIONS—ENGINEERING BEST PRACTICES FOR DATA**  
Friday, October 18, 1:30 pm – 3:00 pm  
Room 1E09

Presenter:  
- Gabriele Bunkheila, MathWorks, Madrid, Spain
Product Development

PD15 - HARDWARE DEVELOPMENT USING JIRA
Friday, October 18, 3:15 pm – 4:45 pm
Room 1E09
Presenter: Remi Vaucher, QSC, Costa Mesa, CA, USA

PD16 - HOW TO ADD AES70 CONTROL TO YOUR PRODUCTS
Saturday, October 19, 9:00 am – 10:30 am
Room 1E09
Presenters: Jeff Berryman, OCA Alliance
Simon Jones, Focusrite
Ethan Wetzel, OCA Alliance

PD17 - USING GAGE R&R TOOLS TO VALIDATE AND CHARACTERIZE ACOUSTIC MEASUREMENT SYSTEMS
Saturday, October 19, 10:45 am – 12:15 pm
Room 1E09
Presenter: Emily Wigley, Acoustical Engineer, Shure Inc., Chicago, IL, USA

PD18 - ACOUSTIC METAMATERIAL IN LOUDSPEAKER SYSTEMS DESIGN
Saturday, October 19, 1:30 pm – 3:00 pm
Room 1E09
Presenters: Letizia Chisari, Contralto Audio srl, Casoli, Italy
Mario Di Cola, Contralto Audio srl, Casoli, Italy
Paolo Martignon, Contralto Audio srl, Casoli, Italy

RECORDING AND PRODUCTION

RP-01 Miniature Microphones
Wednesday, Oct. 16
9:15 am – 10:45 am
Room 1E21

RP-02 Evolution of Album Production
Wednesday, Oct. 16
11:00 pm – 12:00 noon
Room 1E21

RP-03 So Unforgettable—2 Iconic Albums
Wednesday, Oct. 16
1:30 pm – 3:00 pm
Room 1E21

RP-04 Spatial Audio Microphones
Wednesday, Oct. 16
3:15 pm – 4:45m
Room 1E21
RP-05  3D Microphone Technique Shootout—9.1 Demo  Wednesday, Oct. 16  4:30 pm – 6:00 pm  Room 1E06

RP-06  Immersive Music Listening Session  Thursday, Oct. 17  10:30 am – 12:00 noon  Room 1E06

RP-07  Podcast Production  Thursday, Oct. 17  10:45 am – 11:45 am  Room 1E12

RP-08  Changing Roles in the Audio Industry  Thursday, Oct. 18  11:15 am – 12:15 pm  Room 1E21

RP-09  The Doppler Gang  Thursday, Oct. 17  1:30 pm – 2:30 pm  Room 1E21

RP-10  Tuning the Vocal—Watch, Listen, adn Learn  Thursday, Oct. 17  2:45 pm – 3:45 pm  Room 1E21

RP-11  Pitch Shift FXpertise  Thursday, Oct. 17  4:00 pm – 5:30 pm  Room 1E21

RP-12  Recording/Realizing Immersive Classical Music  Friday, Oct. 18  9:00 am –10:30 am  Room 1E17

RP-13  Mastering Immersive Audio  Friday, Oct. 18  10:15 am – 11:15 am  Room 1E08

RP-14  For the Record: Engineering Prince  Friday, Oct. 18  11:00 am – 12:00 noon  Room 1E21

RP-15  Studio Design for 2070  Friday, Oct. 18  1:00 pm –2:00 pm  Room 1E08

RP-16  Hybrid Audio  Friday, Oct. 18  1:30 pm –2:30 pm  Room 1E11

RP-17  Platinum Latin Engineers (An AES Special Event)  Friday, Oct. 18  2:45 pm – 4:15 pm  Room 1E15+16

RP-18  Color in Mastering  Friday, Oct. 18  4:30 pm – 5:30 pm  Room 1E10

RP-19  Sound on Wheels  Friday, Oct. 19  4:45 pm – 5:45 pm  Room 1E09

RP-20  Live Concert Sound  Saturday, Oct. 19  11:15 am – 12:15 pm  Room 1E21
Recording & Production

RP01 - MINIATURE MICROPHONES—WHY ARE THEY SO ATTRACTIVE?
Wednesday, October 16, 9:15 am – 10:45 am
Room 1E21

Chair:  Eddy Bøgh Brixen, EBB-consult, Smørum, Denmark; DPA Microphones, Allerød, Denmark

Panelists:  Antoin Cox, Production Sound Mixer
Mark Gilbert, Shure, Niles, IL, USA
Nanna-Karina Schleimann, Danish National School of Performing Arts, Copenhagen, Denmark

This session is presented in association with the AES Technical Committee on Microphones and Applications

RP02 - EVOLUTION OF ALBUM PRODUCTION FROM START TO FINISH
Wednesday, October 16, 11:00 am – 12:00 noon
Room 1E21

Moderator:  Terri Winston, Women’s Audio Mission, San Francisco, CA, USA

Panelists:  Rachel Alina, P!nk, Selena Gomez
Gloria Kaba, Little Underground
Heba Kadry, Timeless Mastering, Brooklyn, NY, USA
Simone Torres, Vocal Producer and Multi-Platinum engineer (Sia, Dua Lipa, Usher)

This session is presented in association with the AES Technical Committee on Recording Technology and Practices

RP03 - SO UNFORGETTABLE—2 ICONIC ALBUMS FROM 2 NON-STUDIO SPACES
Wednesday, October 16, 1:30 pm – 3:00 pm
Room 1E21

Moderator:  Alex Case, University of Massachusetts Lowell, Lowell, MA, USA

Presenter:  Kevin Killen, New York, NY, USA

RP04 - SPATIAL AUDIO MICROPHONES
Wednesday, October 16, 3:15 pm – 4:45 pm
Room 1E21

Presenters:  Gary Elko, mh acoustics, Summit, NJ USA
Brian Glasscock, Sennheiser
Len Moskowitz, Core Sound LLC, Teaneck, NJ, USA
This session is presented in association with the AES Technical Committee on Microphones and Applications

RP05 - 3D MICROPHONE TECHNIQUE SHOOTOUT—9.1 DEMO AND DISCUSSION
Wednesday, October 16, 4:30 pm – 6:00 pm
Room 1E06
Presenter: Hyunkook Lee, University of Huddersfield, Huddersfield, UK

RP06 - IMMERSIVE MUSIC LISTENING SESSION:
CRITICAL LISTENING AND RECORDING TECHNIQUES
Thursday, October 17, 10:30 am – 12:00 noon
Room 1E06
Presenters: David Bowles, Swineshead Productions LLC, Berkeley, CA, USA
Paul Geluso, New York University, New York, NY, USA

RP07 - PODCAST PRODUCTION
Thursday, October 17, 10:45 am – 11:45 am
Room 1E12
Moderator: Elena Botkin-Levy
Panelists: Chiquita Paschal, Uncivil, Another Round
Haley Shaw, Gimlet Media, Brooklyn, NY, USA
Jenna Weiss-Berman, Pineapple Media

This session is presented in association with the AES Technical Committee on Recording Technology and Practices

RP08 - CHANGING ROLES IN THE AUDIO INDUSTRY
Thursday, October 17, 11:15 am - 12:15 pm
Room 1E21
Moderator: Paul “Willie Green” Womack, Willie Green Music, Brooklyn, NY, USA
Panelists: Ariel Borujow, Westward Music Group Inc.
Ricardo Gutierrez, Drake/Mariah Carey/The Rolling Stones
Ken “Duro” Ifill, Jay-Z & Alicia Keys/Erykah Badu/Will Smith
Recording & Production

RP09 - THE DOPPLER GANG—A PANEL OF PROS DISCUSS THE PROS AND CONS OF PITCH CHANGE
Thursday, October 17, 1:30 pm – 2:30 pm
Room 1E21

Moderators: Anthony Agnello, Eventide Inc., Little Ferry, NJ, USA
Richard Factor, Eventide Inc., Little Ferry, NJ, USA

Panelists: Alex Case, University of Massachusetts Lowell, Lowell, MA, USA
Bob Clearmountain, Mix This!, Pacific Palisades, CA, USA
George Massenburg, McGill University, Montreal, Quebec, Canada
Susan Rogers, Berklee College of Music, Boston, MA, USA
Tony Visconti, David Bowie, T.Rex

RP10 - TUNING THE VOCAL—WATCH, LISTEN, AND LEARN
Thursday, October 17, 2:45 pm – 3:45 pm
Room 1E21

Presenters: Alex Case, University of Massachusetts Lowell, Lowell, MA, USA
Ian Kagey, Berklee NYC, New York, NY, USA

RP11 - PITCH SHIFT FXPERTISE—RECORD AND MIX STRATEGIES FOR THE BROAD RANGE PITCH EFFECT POSSIBILITIES
Thursday, October 17, 4:00 pm – 5:30 pm
Room 1E21

Presenter: Alex Case, University of Massachusetts Lowell, Lowell, MA, USA

RP12 - RECORDING AND REALIZING IMMERSIVE CLASSICAL MUSIC FOR, AND WITH, DOLBY ATMOS
Friday, October 18, 9:00 am – 10:30 am
Room 1E17

Moderator: John Loose, Dolby Laboratories, Inc., San Francisco, CA, USA

Panelists: David Boules, Swineshead Productions LLC, Berkeley, CA, USA
Morten Lindberg, 2L (Lindberg Lyd AS), Oslo, Norway
Jack Vad, San Francisco Symphony, San Francisco, CA, USA
RP13 - MASTERING IMMERSIVE AUDIO  
Friday, October 18, 10:15 am – 11:45 am  
Room 1E08  

Moderator: Michael Romanowski, Coast Mastering, Berkeley, CA, USA; The Tape Project  

Panelists: Stefan Bock, msm-studios GmbH, Munich, Germany  
Gavin Lurssen, Lurssen Mastering, Los Angeles, CA, USA  
Andres A. Mayo, Andres Mayo Mastering & Audio Post, Buenos Aires, Argentina  
Darcy Proper, Darcy Proper Mastering, Eemnes, The Netherlands; Wisseloord Studios, Hilversum, The Netherlands  
Mark Wilder

RP14 - FOR THE RECORD: ENGINEERING PRINCE  
Friday, October 18, 11:00 am – 12:00 noon  
Room 1E21  

Moderator: Leslie Ann Jones, Recording Engineer and Producer, Director of Music Recording and Scoring, Skywalker Sound, San Rafael, CA, USA  

Panelists: Lisa Chamblee  
Sylvia Massy  
Peggy McCreary  
Susan Rogers, Berklee College of Music, Boston, MA, USA  

This session is presented in association with the AES Technical Committee on Recording Technology and Practices

RP15 - STUDIO DESIGN FOR 2070 —50 YEARS FROM NOW— DARE WE LOOK?  
Friday, October 18, 1:00 pm – 2:00 pm  
Room 1E08  

Presenters: Ann Mincieli, Jungle City Studios  
Sergio Molho, WSDG - Walters Storyk Design Group, Highland, NY, USA; Miami, FL, USA  
John Storyk, Walters-Storyk Design Group, Highland, NY, USA

RP16 - HYBRID AUDIO: MIXING VIRTUAL AND ACOUSTIC INSTRUMENTS FOR MEDIA PRESENTATIONS  
Friday, October 18, 1:30 pm – 2:30 pm  
Room 1E11  

Presenters: Brandie Lane, West Point Band, West Point, NY, USA;
Recording & Production

New York University, New York, NY, USA
Noah Taylor, Staff Sergeant, United States Military Academy Band, West Point, NY, USA

RP17 - PLATINUM LATIN ENGINEERS & PRODUCERS
(AN AES SPECIAL EVENT)
Friday, October 18, 2:45 pm – 4:15 pm
Room 1E15+16

Chair: Andres A. Mayo, Andres Mayo Mastering & Audio Post, Buenos Aires, Argentina
Panelists: Carli Beguerie, Studio Instrument Rentals/Mastering Boutique, New York, NY, USA
Mauricio Gargel, Mauricio Gargel Audio Mastering, Murfreesboro, TN, USA
Andres Millan, Diffusion Magazine; Boutique
Pro Audio, Bogotá, Cundinamarca, Colombia
Martin Muscatello, 360 Music Lab
Camilo Silva F., Camilo Silva F. Mastering, Chia, Cundinamarca, Colombia

RP18 - COLOR IN MASTERING: THE CREATIVE SIDE
OF THE DISCIPLINE
Friday, October 18, 4:30 pm – 5:30 pm
Room 1E10

Chair: Jonathan Wyner, M Works Studios/iZotope/Berklee College of Music, Boston, MA, USA; M Works Mastering
Panelists: Adam Ayan, Gateway Mastering Studios, Portland, ME USA
Bob Katz, Digital Domain Mastering, Orlando, FL, USA
Mandy Parnell, Black Saloon Studios, London, UK
Alex Psaroudakis, Mworks Mastering, Quincy, MA, USA

RP19 - SOUND REPRODUCTION ON WHEELS:
HOW TO SERVE THE ART
Friday, October 18, 4:45 pm – 5:45 pm
Room 1E09

Chair: Rafael Kassier, Harman Becker Automotive Systems GmbH, Karlsbad, Germany

RP20 - LIVE CONCERT SOUND
Saturday, October 19, 11:15 am – 12:15 pm
Room 1E21
Sound Reinforcement

Moderator: **Terri Winston**, Women’s Audio Mission, San Francisco, CA, USA

Panelists: **Fela Davis**, Christian McBride, KRS One  
**Michelle Sabolchick Pettinato**, Gwen Stefani, Jewel  
**Caroline Sanchez**, Saturday Night Live, Good Morning America

This session is presented in association with the AES Technical Committee on Recording Technology and Practices

### SOUND REINFORCEMENT

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<td>Large-Scale LS System Calibration</td>
<td>Wednesday, Oct. 16 1:30 pm – 3:00 pm</td>
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<td>SR-02</td>
<td>Immersive and Surround Techniques</td>
<td>Wednesday, Oct. 16 3:00 pm – 4:30 pm</td>
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<td>SR-03</td>
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<td>Thursday, Oct. 17 9:00 am – 12 noon</td>
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<td>IP Based Live Production Intercom Systems</td>
<td>Thursday, Oct. 17 3:00 pm – 5:00 pm</td>
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<td>AC Power, Grounding, &amp; Shielding Super Session</td>
<td>Friday, Oct. 18 9:00 am – 12:00 noon</td>
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<td>SR-06</td>
<td>A Cookbook Approach to Sound System Optimization</td>
<td>Friday, Oct. 18 1:15 pm – 3:15 pm</td>
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<td>SR-07</td>
<td>Psychoacoustics for Sound Engineers</td>
<td>Friday, Oct. 18 3:15 pm – 5:15 pm</td>
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<td>SR-08</td>
<td>Your Noise Isn’t My Noise</td>
<td>Friday, Oct. 18 4:15 pm – 5:45 pm</td>
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<td>SR-09</td>
<td>The Audio Vendor and Band Mixer</td>
<td>Saturday, Oct. 19 11:30 am – 12:30 pm</td>
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<td>SR-10</td>
<td>Seven Steps to a Successful Design</td>
<td>Saturday, Oct. 20 1:45 pm – 3:00 pm</td>
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**Sound Reinforcement**

**SR01 - LARGE-SCALE LOUDSPEAKER SYSTEM CALIBRATION, FROM SIMULATION-BASED DESIGN TO ONSITE TUNING**  
Wednesday, October 16, 1:30 pm – 3:00 pm  
Room 1E12

Presenters:  
Etienne Corteel, L-Acoustics, Marcoussis, France  
Francois Montignies, L-Acoustics, Marcoussis, France  
Scott Sugden, L-Acoustics, Oxnard, CA, USA

This session is presented in association with the AES Technical Committee on Acoustics and Sound Reinforcement

**SR02 - IMMERSIVE AND SURROUND TECHNIQUES FOR LIVE PERFORMANCE**  
Wednesday, October 16, 3:00 pm – 4:30 pm  
Room 1E12

Presenter:  
Andrew Keister

**SR03 - RF SUPER SESSION**  
Thursday, October 17, 9:00 am – 12:00 noon  
Room 1E13

Presenters:  
Henry Cohen, CP Communications  
Jason Glass, Clean Wireless  
James Stoffo, Independent, Key West, FL, USA

**SR04 - IP BASED LIVE PRODUCTION INTERCOM SYSTEMS**  
Thursday, October 17, 3:00 pm – 5:00 pm  
Room 1E11

Presenters:  
Henry Cohen, CP Communications  
Peter Erskine, Best Audio, Mt. Vernon, NY, USA

**SR05 - AC POWER, GROUNDING, AND SHIELDING SUPER SESSION**  
Friday, October 18, 9:00 am – 12:00 noon  
Room 1E12

Chair:  
Henry Cohen, CP Communications

Panelists:  
Bruce Olson, Olson Sound Design, LLC, Minneapolis, MN, USA; AFMG Services North America, LLC, Minneapolis, MN, USA  
Bill Whitlock, Whitlock Consulting, Ventura, CA, USA

**SR06 - A COOKBOOK APPROACH TO SOUND SYSTEM OPTIMIZATION WITH BOB MCCARTHY**  
Friday, October 18, 1:15 pm – 3:15 pm  
Room 1E21

Presenters:  
Jamie Anderson, Rational Acoustics
SR07 - PSYCHOACOUSTICS FOR SOUND ENGINEERS
Friday, October 18, 3:15 pm – 5:15 pm
Room 1E21
Presenter: Peter Mapp, Peter Mapp Associates, Colchester, Essex, UK

This session is presented in association with the AES Technical Committee on Acoustics and Sound Reinforcement

SR08 - YOUR NOISE ISN’T MY NOISE: IMPROVING SOUND EXPOSURE AND NOISE POLLUTION MANAGEMENT AT OUTDOOR EVENTS
Friday, October 18, 4:15 pm – 5:45 pm
Room 1E13
Chair: Adam J. Hill, University of Derby, Derby, Derbyshire, UK
Panelists: Etienne Corteel, L-Acoustics, Marcoussis, France
Bob McCarthy, Meyer Sound, New York, NY, USA
Elena Shabalina, d&b audiotechnik, Backnang, Germany
Andy Wardle, University of the Highlands & Islands, UK

This session is presented in association with the AES Technical Committee on Acoustics and Sound Reinforcement

SR09 - IMPROVING EDUCATION AND KNOWLEDGE TRANSFER IN SOUND REINFORCEMENT
Saturday, October 19, 11:30 am – 12:30 pm
Room 1E12
Chair: Elena Shabalina, d&b audiotechnik, Backnang, Germany
Panelists: Etienne Corteel, L-Acoustics, Marcoussis, France
Adam J. Hill, University of Derby, Derby, Derbyshire, UK
Malle Kaas, Women in Live Music
Manuel Melon, Le Mans Université, Le Mans, France

This session is presented in association with the AES Technical Committee on Acoustics and Sound Reinforcement
SR10 - SEVEN STEPS TO A SUCCESSFUL SOUND SYSTEM DESIGN
Saturday, October 19, 3:30 pm – 5:00 pm
Room 1E12
Presenter: Josh Loar, Michigan Technological University, Houghton, MI, USA; The Producers Group, Burbank, CA, USA

SPECIAL EVENTS

SE-01 Opening Ceremonies/ Awards/Keynote
Wednesday, Oct. 16
12:00 noon – 1:30 pm
Room 1E15+16
SE-02 Mixing & Mastering for Immersive Audio
Wednesday, Oct. 16
1:30 pm – 2:30 pm
Room 1E08
SE-03 The Loudness War Is Over (If You Want It)
Wednesday, Oct. 16
2:45 pm – 4:15 pm
Room 1E15+16
SE04 Making Sheryl Crow’s “Threads”
Wednesday, Oct. 16
4:30 pm – 5:30 pm
Room 1E15+16
HH-01 Chopped and Looped (An AES Special Event)
Thursday, Oct. 17
9:30 am – 11:00 am
Room 1E15+16
SE-05 Show Me the Money: Funding
Thursday, Oct. 17
11:15 am – 12:15 pm
Room 1E15+16
SE-06 Lunchtime Keynote:
Linda Perry
Thursday, Oct. 17
1:30 pm – 2:30 pm
Room 1E15+16
SE-07 Triple Threat
Thursday, Oct. 17
3:00 pm – 4:00 pm
Room 1E15+16
AR-01 Long-Term Preservation of Audio Assets (An AES Special Event)
Thursday, Oct. 17
4:30 pm – 5:30 pm
Room 1E15+16
SE-08 DTVAG Forum
Thursday, Oct. 17
4:30 pm – 5:30 pm
Room 1E10
SE-09 Heyser Lecture
Thursday, Oct. 17
6:30 pm – 8:00 pm
Room 1E15+16
H-06 African Americans in Audio (An AES Special Event)
Friday, Oct. 18
9:30 am – 11:00 am
Room 1E15+16
## Special Events

<table>
<thead>
<tr>
<th>Event Code</th>
<th>Event Title</th>
<th>Date</th>
<th>Time</th>
<th>Room</th>
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</thead>
<tbody>
<tr>
<td>SE-10</td>
<td>How We Make Music</td>
<td>Friday, Oct. 18</td>
<td>11:15 am – 12:15 pm</td>
<td>Room 1E15+16</td>
</tr>
<tr>
<td>SE-11</td>
<td>Lunchtime Keynote: 1500 or Nothin’</td>
<td>Friday, Oct. 18</td>
<td>1:30 pm – 2:30 pm</td>
<td>Room 1E15+16</td>
</tr>
<tr>
<td>RP-17</td>
<td>Platinum Latin Engineers &amp; Producers (An AES Special Event)</td>
<td>Friday, Oct. 18</td>
<td>2:45 pm – 4:15 pm</td>
<td>Room 1E15+16</td>
</tr>
<tr>
<td>SE-12</td>
<td>The Legendary Quad Building</td>
<td>Friday, Oct. 18</td>
<td>4:30 pm – 5:30 pm</td>
<td>Room 1E15+16</td>
</tr>
</tbody>
</table>

### SE01 - OPENING CEREMONIES / AWARDS / KEYNOTE SPEECH

Wednesday, October 16, 12:00 pm – 1:30 pm  
Room 1E15+16

Presenters:  
- **Agnieszka Roginska**, New York University, New York, NY, USA  
- **Valerie Tyler**, College of San Mateo, San Mateo, CA, USA  
- **Jonathan Wyner**, M Works Studios/iZotope/Berklee College of Music, Boston, MA, USA; M Works Mastering  
- **Prince Charles Alexander** introducing **Grandmaster Flash**, Keynote Speaker

*This session is presented in association with the AES Technical Committee on Recording Technology and Practices*

### SE02 - MIXING & MASTERING FOR IMMERSIVE AUDIO

Wednesday, October 16, 1:30 pm – 2:30 pm  
Room 1E08

Presenters:  
- **Reuben Cohen**, Lurssen Mastering, Burbank, CA, USA  
- **Bob Ludwig**, Gateway Mastering Studios, Inc., Portland, ME, USA  
- **Gavin Lurssen**, Lurssen Mastering, Los Angeles, CA, USA  
- **Greg Penny**

### SE03 - THE LOUDNESS WAR IS OVER (IF YOU WANT IT)

Wednesday, October 16, 2:45 pm – 4:15 pm  
Room 1E15+16

Moderator: **George Massenburg**, McGill University, Montreal, Quebec, Canada

Panelists:  
- **Serban Ghenea**  
- **Gimel “Guru” Keaton**
Special Events

Bob Ludwig, Gateway Mastering Studios, Inc., Portland, ME, USA
Thomas Lund, Genelec Oy, Iisalmi, Finland
Ann Mincieli, Jungle City Studios, New York, NY, USA

SE04 - THE MAKING OF SHERYL CROW’S “THREADS”
Wednesday, October 16, 4:30 pm – 5:30 pm
Room 1E15+16

Moderator: Glenn Lorbecki, Glenn Sound Inc., Seattle, WA, USA
Panelists: Dave O’Donnell, Mixer/Engineer
TBA

SE00 - DIVERSITY & INCLUSION COCKTAIL PARTY
Wednesday, October 16, 5:30 pm – 7:00 pm
Hall 1E

HH01 - CHOPPED AND LOOPED—INSIDE THE ART OF SAMPLING FOR HIP-HOP (AN AES SPECIAL EVENT)
Thursday, October 17, 9:30 am – 11:00 am
Room 1E15+16

Moderator: Paul “Willie Green” Womack, Willie Green Music, Brooklyn, NY, USA
Panelists: Just Blaze, Jay-Z, Kanye West
Breakbeat Lou, Ultimate Breaks and Beats
Hank Shocklee, Shocklee Entertainment, New York, NY, USA
Ebonie Smith, Atlantic Records/Hamilton Cast Album

SE05 - SHOW ME THE MONEY: FUNDING YOUR AUDIO DREAM
Thursday, October 17, 11:15 am – 12:15 pm
Room 1E15+16

Moderator: Heather D. Rafter, RafterMarch US
Panelists: Phil Dudderidge, Executive Chairman, Focusrite PLC
Mark Ethier, CEO iZotope, Cambridge, MA, USA
Ethan Jacks, Founder, MediaBridge Capital
Piper Payne, Neato Mastering, San Francisco Bay Area, CA, USA
Wisam Reid, Harvard Medical School
SE06 - LUNCHE TIME KEYNOTE: LINDA PERRY  
Thursday, October 17, 1:30 pm – 2:30 pm  
Room 1E15+16  
Presenter: Linda Perry

SE07 - TRIPLE THREAT: THE ART, PRODUCTION & TECHNOLOGY OF MAKING MUSIC  
Thursday, October 17, 3:00 pm – 4:00 pm  
Room 1E15+16  
Presenters: Danny Kortchmar, Legendary GRAMMY nominated guitarist, songwriter and producer (Jackson Browne, Don Henley, James Taylor)  
Linda Perry

AR01 - LONG TERM PRESERVATION OF AUDIO ASSETS (AN AES SPECIAL EVENT)  
Thursday, October 17, 4:30 pm – 5:30 pm  
Room 1E15+16  
Moderator: Jessica Thompson, Jessica Thompson Audio, Berkeley, CA, USA  
Panelists: Jeff Balding, NARAS P&E Wing  
Rob Friedrich, Library of Congress  
Jamie Howarth, Plangent Processes, Nantucket, MA, USA  
Pat Kraus, UMG  
Greg Parkin, Iron Mountain  
Cheryl Pawelski, Omnivore Records  
Toby Seay, Drexel University, Philadelphia, PA, USA

SE08 - DTVAG FORUM: AUDIO FOR A NEW TELEVISION LANDSCAPE  
Thursday, October 17, 4:30 pm – 5:30 pm  
Room 1E10  
Presenters: Roger Charlesworth, DTV Audio Group, New York, NY, USA  
Tim Carroll, Dolby Laboratories, San Francisco, CA, USA  
Scott Kramer, Netflix, Los Angeles, CA, USA  
Sean Richardson, Starz Entertainment, Denver, CO, USA  
Tom Sahara, Turner Sports, Atlanta, GA, USA  
Jim Starzynski, NBCUniversal, New York, NY, USA; ATSC Group, Washington D.C.
Special Events

SE09 - HEYSER LECTURE
Thursday, October 17, 6:30 pm – 8:00 pm
Room 1E15+16
Lecturer: Louis Fielder, Retired, Millbrae, CA, USA

H06 - AFRICAN AMERICANS IN AUDIO
(AN AES SPECIAL EVENT)
Friday, October 18, 9:30 am – 11:00 am
Room 1E15+16
Moderator: Leslie Gaston-Bird, Mix Messiah Productions,
Brighton, UK; Institute of Contemporary Music
Performance, London, UK
Panelists: Prince Charles Alexander, Berklee College of Music,
Boston, MA, USA
Abhita Austin, Audio Engineer-Producer and Founder
of The Creator’s Suit
James Henry, recording engineer/producer and
audio educator
Ebonie Smith, Atlantic Records/Hamilton Cast Album
Paul “Willie Green” Womack, Willie Green Music,
Brooklyn, NY, USA
Bobby Wright, Hampton University

SE10 - HOW WE MAKE MUSIC—CROSSING THE DECADES
FROM ANALOG TO DIGITAL
Friday, October 18, 11:15 am – 12:15 pm
Room 1E15+16
Moderator: Chris Lord-Alge, Mix LA, Los Angeles, CA, USA
Panelists: Niko Bolas, The Surf Shack Studio, Ventura, CA USA;
Germano Studio, NYC, NY USA
Danny Kortchmar, Legendary GRAMMY nominated
guitarist, songwriter and producer (Jackson Browne,
Don Henley, James Taylor)
Tom Lord-Alge, SPANK Studios, South Beach, FL, USA

SE11 - LUNCHTIME KEYNOTE: 1500 OR NOTHIN’
Friday, October 18, 1:30 pm – 2:30 pm
Room 1E15+16
Presenters: Larrance Dopson
James Fauntleroy

RP17 - PLATINUM LATIN ENGINEERS & PRODUCERS
(AN AES SPECIAL EVENT)
Friday, October 18, 2:45 pm – 4:15 pm
Room 1E15+16
Student Events & Career Development

Chair:  
Andres A. Mayo, Andres Mayo Mastering & Audio Post, Buenos Aires, Argentina

Panelists:  
Carli Beguerie, Studio Instrument Rentals/Mastering Boutique, New York, NY, USA
Mauricio Gargel, Mauricio Gargel Audio Mastering, Murfreesboro, TN, USA
Andres Millan, Diffusion Magazine - Boutique Pro Audio, Bogotá, Cundinamarca, Colombia
Martin Muscatello, 360 Music Lab
Camilo Silva F., Camilo Silva F. Mastering, Chia, Cundinamarca, Colombia

SE12 - THE PAST PRESENT AND FUTURE OF THE LEGENDARY QUAD BUILDING
Friday, October 18, 4:30 pm – 5:30 pm
Room 1E15+16

Moderator:  
Prince Charles Alexander, Berklee College of Music, Boston, MA, USA

Panelists:  
DG
Ricky Hosn
Dave Malekpour
Carla Springer

STUDENT EVENTS & CAREER DEVELOPMENT

SC-00 Resume Review  
Wednesday, Oct. 16  
9:00 am – 5:00 pm  
SDA Booth

SC-01 Empowering the Next Generation  
Wednesday, Oct. 16  
9:15 am – 10:15 am  
Room 1E07

SC-02 Education Forum  
Wednesday, Oct. 16  
10:30 am – 12:00 noon  
Room 1E12

SC-03 Recording Critiques  
Wednesday, Oct. 16  
1:30 pm – 2:30 pm  
Room 1E06

SC04 Mix It!  
Wednesday, Oct. 16  
3:00 pm – 4:00 pm  
Room 1E17
<table>
<thead>
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<th>Event Name</th>
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<th>Location</th>
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<tr>
<td>SC-05</td>
<td>Student Delegate Assembly, Part 1</td>
<td>Wednesday, Oct. 16</td>
<td>4:15 pm – 5:30 pm</td>
<td>Room 1E13</td>
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<tr>
<td>SC-06</td>
<td>AES MatLab Plugin Competition</td>
<td>Thursday, Oct. 17</td>
<td>9:00 am – 10:30 am</td>
<td>Room 1E12</td>
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<tr>
<td>SC-07</td>
<td>Resume Review</td>
<td>Thursday, Oct. 17</td>
<td>9:00 am – 5:00 pm</td>
<td>SDA Booth</td>
</tr>
<tr>
<td>SC-08</td>
<td>Saul Walker Student Design Competition</td>
<td>Thursday, Oct. 17</td>
<td>10:45 am – 12:15 pm</td>
<td>South Concourse A</td>
</tr>
<tr>
<td>SC-09</td>
<td>Recording Critiques</td>
<td>Thursday, Oct. 17</td>
<td>12:00 noon – 1:00 pm</td>
<td>Room 1E06</td>
</tr>
<tr>
<td>SC-10</td>
<td>MatLab Plugin Open Demos</td>
<td>Thursday, Oct. 17</td>
<td>1:30 pm – 2:30 pm</td>
<td>South Concourse A</td>
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<tr>
<td>SC-11</td>
<td>Recording Competition — Part 1</td>
<td>Thursday, Oct. 17</td>
<td>3:00 pm – 6:00 pm</td>
<td>Room 1E06</td>
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<tr>
<td>SC-12</td>
<td>Resume Review</td>
<td>Friday, Oct. 18</td>
<td>9:00 am – 5:00 pm</td>
<td>SDA Booth</td>
</tr>
<tr>
<td>SC-13</td>
<td>Recent Graduate Panel</td>
<td>Friday, Oct. 18</td>
<td>9:30 am – 11:00 am</td>
<td>Room 1E21</td>
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<tr>
<td>SC-14</td>
<td>The Art of Listening (High School Event)</td>
<td>Friday, Oct. 18</td>
<td>11:30 am – 12:30 pm</td>
<td>Room 1E13</td>
</tr>
<tr>
<td>SC-15</td>
<td>Education and Career Fair</td>
<td>Friday, Oct. 18</td>
<td>11:30 am – 1:30 pm</td>
<td>South Concourse B</td>
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<tr>
<td>SC-16</td>
<td>Recording Critiques</td>
<td>Friday, Oct. 18</td>
<td>12:00 noon – 1:00 pm</td>
<td>Room 1E06</td>
</tr>
<tr>
<td>SC-17</td>
<td>SPARS Mentoring</td>
<td>Friday, Oct. 18</td>
<td>2:30 pm – 4:00 pm</td>
<td>South Concourse A</td>
</tr>
<tr>
<td>SC-18</td>
<td>Recording Competition — Part 2</td>
<td>Friday, Oct. 18</td>
<td>3:00 pm – 6:00 pm</td>
<td>Room 1E06</td>
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<tr>
<td>SC-19</td>
<td>Sound Girls Mentoring</td>
<td>Friday, Oct. 18</td>
<td>4:00 pm – 5:30 pm</td>
<td>South Concourse A</td>
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<tr>
<td>SC-20</td>
<td>Resume Review</td>
<td>Saturday, Oct. 19</td>
<td>9:00 am – 6:00 pm</td>
<td>SDA Booth</td>
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<tr>
<td>SC-21</td>
<td>Student Delegate Assembly, Part 2</td>
<td>Saturday, Oct. 19</td>
<td>10:45 am – 12:15 pm</td>
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</tr>
</tbody>
</table>
SC-22  Recording Critiques
Room 1E15+16
Saturday, Oct. 19
12:30 pm – 1:30 pm
Room 1E06

SC-23  Essential Elements of Ear Training
Saturday, Oct. 19
3:00 pm – 4:30 pm
Room 1E07

SC00 - RESUME REVIEW (FOR STUDENTS, RECENT GRADS, AND YOUNG PROFESSIONALS)
Wednesday, October 16, 9:00 am – 5:00 pm
SDA Booth
Moderator: Alex Kosiorek, Central Sound at Arizona PBS,
Phoenix, AZ, USA

This review will take place during the duration of the convention by appointment only.

SC01 - EMPOWERING THE NEXT-GENERATION OF AUDIO INDUSTRY LEADERS
Wednesday, October 16, 9:15 am – 10:15 am
Room 1E07
Moderator: Jay LeBoeuf, Executive Director at Real Industry,
Lecturer at Stanford University

SC02 - EDUCATION FORUM - EDUCATION OUTSIDE SCHOOL
Wednesday, October 16, 10:30 am – 12:00 noon
Room 1E12
Moderator: Magdalena Piotrowska, Gdansk University of Technology, Poland; Hear Candy Mastering, Poland

SC03 - STUDENT RECORDING CRITIQUES
Wednesday, October 16, 1:30 pm – 2:30 pm
Room 1E06
Moderator: Ian Corbett, Kansas City Kansas Community College,
Kansas City, KS, USA; off-beat-open-hats recording & sound reinforcement

SC04 - MIX IT! IMPROVING YOUR MIXES AND YOUR MIXING WORKFLOW
Wednesday, October 16, 3:00 pm – 4:00 pm
Room 1E17
Student Events & Career Development

Chair: Ian Corbett, Kansas City Kansas Community College, Kansas City, KS, USA; off-beat-open-hats recording & sound reinforcement

Panelists: Cosette Collier, Middle Tennessee State University, Murfreesboro, TN, USA
Yuri Lysolevanov, Flashpoint Chicago, a campus of Columbia College Hollywood, Chicago, IL, USA

SC05 - STUDENT DELEGATE ASSEMBLY, PART 1
Wednesday, October 16, 4:15 pm – 5:30 pm
Room 1E13

SC06 - AES MATLAB PLUGIN STUDENT COMPETITION
Thursday, October 17, 9:00 am – 10:30 am
Room 1E12

SC07 - RESUME REVIEW (FOR STUDENTS, RECENT GRADS, AND YOUNG PROFESSIONALS)
Thursday, October 17, 9:00 am – 5:00 pm
SDA Booth

Moderator: Alex Kosiorek, Central Sound at Arizona PBS, Phoenix, AZ, USA

This review will take place during the duration of the convention by appointment only.

SC08 - SAUL WALKER STUDENT DESIGN COMPETITION
Thursday, October 18, 5:00 pm – 6:00 pm
South Concourse A

SC09 - STUDENT RECORDING CRITIQUES
Thursday, October 17, 12:00 noon – 1:00 pm
Room 1E06

Moderator: Ian Corbett, Kansas City Kansas Community College, Kansas City, KS, USA; off-beat-open-hats recording & sound reinforcement

SC10 - MATLAB PLUGIN AES STUDENT COMPETITION—OPEN DEMOS
Thursday, October 17, 1:30 pm – 2:30 pm
South Concourse A

SC11 - STUDENT RECORDING COMPETITION—PART 1
Thursday, October 17, 3:00 pm – 6:00 pm
Room 1E06
**Student Events & Career Development**

**SC12 - RESUME REVIEW (FOR STUDENTS, RECENT GRADS, AND YOUNG PROFESSIONALS)**  
Friday, October 18, 9:00 am – 5:00 pm  
SDA Booth  
Moderator:  **Alex Kosiorek**, Central Sound at Arizona PBS, Phoenix, AZ, USA  

This review will take place during the duration of the convention by appointment only.

**SC13 - RECENT GRADUATE PANEL**  
Friday, October 18, 9:30 am – 11:00 am  
Room 1E21  
Moderator:  **Justin Chervony**, University of Miami, Frost School of Music, Miami, FL, USA  
Panelists:  **TBA**

**SC14 - THE ART OF LISTENING**  
Friday, October 18, 11:30 am – 12:30 pm  
Room 1E13  
Presenter:  **Rick Snoman**, Dance Music Production, Manchester, UK  

This is a High School event limited for HS students.

**SC15 - EDUCATION AND CAREER FAIR**  
Friday, October 18, 11:30 am – 1:30 pm  
South Concourse B

**SC16 - STUDENT RECORDING CRITIQUES**  
Friday, October 18, 12:00 pm – 1:00 pm  
Room 1E06  
Moderator:  **Ian Corbett**, Kansas City Kansas Community College, Kansas City, KS, USA; off-beat-open-hats recording & sound reinforcement

**SC17 - SPARS MENTORING**  
Friday, October 18, 2:30 pm – 4:00 pm  
South Concourse A  
Moderator:  **Drew Waters**, VEVA Sound

**SC18 - STUDENT RECORDING COMPETITION—PART 2**  
Friday, October 18, 3:00 pm – 6:00 pm  
Room 1E06
Student Events & Career Development

SC19 - SOUND GIRLS MENTORING
Friday, October 18, 4:00 pm – 5:30 pm
South Concourse A

SC20 - RESUME REVIEW (FOR STUDENTS, RECENT GRADS, AND YOUNG PROFESSIONALS)
Saturday, October 19, 9:00 am – 5:00 pm
SDA Booth
Moderator: Alex Kosiorek, Central Sound at Arizona PBS, Phoenix, AZ, USA

This review will take place during the duration of the convention by appointment only.

SC21 - STUDENT DELEGATE ASSEMBLY, PART 2
Saturday, October 19, 10:45 am – 12:15 pm
Room 1E15+16

SC22 - STUDENT RECORDING CRITIQUES
Saturday, October 19, 12:30 pm – 1:30 pm
Room 1E06
Presenters: Ian Corbett, Kansas City Kansas Community College, Kansas City, KS, USA; off-beat-open-hats recording & sound reinforcement

SC23 - ESSENTIAL ELEMENTS OF EAR TRAINING FOR CONTEMPORARY AUDIO ENGINEERS
Saturday, October 19, 3:00 pm – 4:30 pm
Room 1E07
Presenters: Jason Corey, University of Michigan, Ann Arbor, MI, USA
Kazuhiko Kawahara, Kyushu University, Fukuoka, Japan
Sungyoung Kim, Rochester Institute of Technology, Rochester, NY, USA
Doyuen Ko, Belmont University, Nashville, TN, USA
Sean Olive, Harman International, Northridge, CA, USA
Timothy Ryan, Webster University
AES MEETINGS

HISTORICAL COMMITTEE MEETING
Friday, October 18, 2:00 pm – 3:30 pm
Room 1C04

REGIONS & SECTIONS MEETING
Friday, October 18, 4:00 pm – 6:00 pm
Room 1C04

AES TECHNICAL COMMITTEE

Meetings of Technical Committees take place throughout the Convention. They take place in Room 1C02 (except for the BOD meetings which take place in Room 1E07).

The meetings are open to all interested individuals. The schedule of meetings can be found at:

http://www.aes.org/technical/meetings.

AES STANDARDS MEETINGS

SC-02-12-R TASK GROUP ON STREAMING METADATA
Wednesday, October 16, 9:00 am – 10:30 am
Room 1C03

SC-02-12-N TASK GROUP ON MEDIA NETWORK DIRECTORY ARCHITECTURE
Wednesday, October 16, 10:30 am – 12:00 noon
Room 1E07

SC-04-04 WORKING GROUP ON MICROPHONE MEASUREMENT AND CHARACTERIZATION
Wednesday, October 16, 1:30 pm – 2:30 pm
Room 1E07
AES Standards Meetings

SC-04-09 WORKING GROUP ON ASSESSMENT OF ACOUSTIC ANNOYANCE
Wednesday, October 16, 2:30 pm – 4:00 pm
Room 1E07

SC-02-01 WORKING GROUP ON DIGITAL AUDIO MEASUREMENT TECHNIQUES
Wednesday, October 16, 4:00 pm – 5:00 pm
Room 1E07

SC-02-08 WORKING GROUP ON AUDIO-FILE TRANSFER AND EXCHANGE
Thursday, October 17, 9:00 am – 10:00 am
Room 1E07

SC-04-03-A TASK GROUP ON MEASURING LOUDSPEAKER MAXIMUM LINEAR PEAK SPL USING NOISE
Thursday, October 17, 10:00 am – 11:00 am
Room 1E07

SC-04-03 WORKING GROUP ON LOUDSPEAKER MODELING AND MEASUREMENT
Thursday, October 17, 11:00 am – 12:30 pm
Room 1E07

SC-05-02 WORKING GROUP ON AUDIO CONNECTORS
Thursday, October 17, 3:00 pm – 4:00 pm
Room 1E07

SC-04-08 WORKING GROUP ON MEASUREMENT AND EQUALIZATION OF SOUND SYSTEMS IN ROOMS
Thursday, October 17, 4:00 pm – 5:30 pm
Room 1E07

SC-02-12-L TASK GROUP ON OPEN CONTROL ARCHITECTURE
Friday, October 18, 9:00 am – 10:30 am
Room 1E07

SC-07-01 WORKING GROUP ON AUDIO METADATA
Friday, October 18, 10:30 am – 11:30 am
Room 1E07

SC-02-02 WORKING GROUP ON DIGITAL INPUT/OUTPUT INTERFACING
Friday, October 18, 11:30 am – 12:30 pm
Room 1E07
AES Standards Meetings

SC-05-05 WORKING GROUP ON GROUNDING
AND EMC PRACTICES
Friday, October 18, 1:30 pm – 2:30 pm
Room 1E07

SC-02-12 WORKING GROUP ON AUDIO
APPLICATIONS OF NETWORKS
Friday, October 18, 4:00 pm – 5:30 pm
Room 1E07

AESSC PLENARY
Saturday, October 19, 9:00 am – 11:00 am
Room 1E07
Upcoming AES Conventions and Conferences

2020 AES Academy 2020 at the NAMM Show
Anaheim, CA, USA
2020 January 16–19

148th CONVENTION
Austria Center Vienna
Vienna, Austria
2020 May 25–28

2020 International Conference “Audio Education”
Murfreesboro & Nashville, TN, USA
2020 July 23–25

2020 International Conference “Audio for Virtual and Augmented Reality 2020”
Redmond, WA, USA
2020 August 17–19

149th CONVENTION
Javits Convention Center
New York, NY, USA
Dates TBA

For the latest information on AES conventions and conferences, visit the AES Web site at www.aes.org
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