Papers in Presentation Order

**Keynote 1**
Chair: Anders C. Gade

P070. Harold Marshall, The acoustical design of the Christchurch Town Hall

**Design and Existing Halls**
Chair: John Bradley

P002. Leo Beranek, Concert hall design: some considerations

P122. Andreas Wagner, Juergen Reinhold, Bolshoi Theatre, Moscow, Russian Federation: The secrets of the acoustical reconstruction

P028. Magne Skålevik, Certainties and uncertainties from using a selection of data to predict concert hall preference

P045. Takayuki Hidaka, An earthquake and a concert hall

**Rating Ambient Noise in Performing Arts Spaces**
Chair: Lily Wang

P119. Robert Essert, Why silence?

P115. Scott Pfeiffer, Anticipating the challenges of modern mechanical system approaches in low-noise design

P068. Lily Wang, Brent Kraay, Rating low levels of ambient noise in performing arts facilities

P061. Jonah Sacks, Robert William Wolff, Ana Maria Jaramillo, Investigation of background noise conditions during music performance

**Keynote 2**
Chair: John Bradley
P074. Eckhard Kahle, Room acoustical quality of concert halls: perceptual factors and acoustic criteria - return from experience

**Room Acoustic Quality: A Multidimensional Concept**
Chair: Stefan Weinzierl and Tapio Lokki

P073. Pamela Clements, Orchestral performance practice and the perception of acoustic quality in concert halls

P019. Antti Kuusinen, Tapio Lokki, Individual differences in quality judgments and preferences of concert hall acoustics

P124. Hans-Joachim Maempel, Jentsch Matthias, Audio-visual interaction of size and distance perception in concert halls: a preliminary study

P127. Shin-ichi Sato, Alejandro Bidondo, Yuezhe Zhao, Suoxian Wu, Nicoli Prodi, Effect of Acoustic and Visual Stimuli on Preference for Different Seating Positions in a Concert Hall and an Opera Theater

P103. Anders Christian Gade, Subjective and objective measures of relevance for the description of acoustics conditions on orchestra stages

P086. Zora Schärer Kalkandjiev, Stefan Weinzierl, Room acoustics viewed from the stage: Solo performers' adjustments to the acoustical environment

P030. Densil Cabrera, Manuj Yadav, Luis Jofre Miranda, Ralph Collins, William L. Martens, The sound of one's own voice in auditoria and other rooms

**Keynote 3**
Chair: Trevor Cox

P110. Michael Vorländer, Simulation and evaluation of acoustic environments

**Design Fundamentals**
Chair: John O'Keefe

P012. David Griesinger, Optimizing loudness, clarity, and engagement in large and small spaces

P047. Umberto Berardi, Higini Arau-Puchades, Increasing Reverberation Time with Diffusers: a new acoustic design for more sustainable halls
P046. Jukka Pätynen, Sakari Tervo, Tapio Lokki, Binaural dynamic responsiveness in concert halls

P067. Matthew G. Blevins, Adam T. Buck, Zhao Peng, Lily Wang, Quantifying the just noticeable difference of reverberation time with band-limited noise centered around 1000 Hz using a transformed up-down adaptive method

ISO3382-1 and Auditorium Design (Part 1)
Chair: Michael Barron

P056. Mike Barron, Assessment of numerical data from ISO3382

P089. Oskar Lindfors, Jukka Ahonen, Henrik Möller, Strength measurements with in-situ reference

P016. Wolfgang Ahnert, Tobias Behrens, Acoustic measurements in a theatre during the performance

P078. Hyung Suk Jang, Jin Yong Jeon, Evaluation of the absorption by the orchestra in concert halls using scale models and computer simulations

Keynote 4
Chair: John O'Keefe

P040. Tapio Lokki, Throw away that standard and listen: your two ears work better

ISO3382-1 and Auditorium Design (Part 2)
Chair: Michael Barron

P010. Claus Lynge Christensen, Georgious Koutsouris, Jens Holger Rindel, The ISO 3382 parameters: Can we simulate them? Can we measure them?

P096. Margriet Lautenbach, Martijn Vercammen, Stage Acoustics, ISO 3382 and beyond

Geometrical Acoustics Revisited - Traditional and NURB based Reflector Optimisation Design
Chair: Eckhard Kahle and John O'Keefe

P108. Alban Bassuet, David Rife, Lucas Dellatorre, Acoustical design through optimization

P095. John O'Keefe, Payam Ashtiani, David Grant, A new software tool to facilitate NURB based geometries in acoustic design
P042. Tomas Mendez Echenagucia, Arianna Astolfi, Mario Sassone, Louena Shtrepi, Arthur Van Der Harten, Interactive design methods for complex curved reflectors in concert halls

P064. Yann Jurkiewicz, Thomas Wulfrank, Eckhard Kahle, How far should the geometry of a concert hall be optimized?

P112. Thomas Scelo, Simon Yu, Integration of acoustics in parametric architectural design

Objective and Subjective Aspects of Scattering Surfaces in Performance Spaces
Chair: Jin Yong Jeon, Roberto Pompoli and Michelle Vigeant

P063. Toshiki Hanyu, Method for estimating diffuseness of sound fields by using decay-cancelled impulse responses

P035. Louena Shtrepi, Sönke Pelzer, Renzo Vitale, Arianna Astolfi, Monika Rychtáriková, Subjective assessment of scattered sound in a virtual acoustical environment simulated with three different algorithms

P039. Aki Haapaniemi, Alex Southern, Tapio Lokki, A finite-difference time-domain investigation of reflections from layered wall structures

P014. Markus Müller-Trapet, Michael Vorländer, In-situ measurements of surface reflection properties

P077. Jin Yong Jeon, Hyung Suk Jang, Yong Hee Kim, Michael Vorländer, Subjective and objective evaluations of scattered sounds in concert halls

P009. David T. Bradley, Markus Müller-Trapet, Jacob Adelgren, Michael Vorländer, Comparison of hanging panels and boundary diffusers in a reverberation chamber

P033. Tetsuya Sakuma, Hyojin Lee, Recent topics in acoustic scattering coefficient determination for wall surfaces

P013. Evan Green, Systematic spatial variations of objective measures in a 1:25 scale model rectangular concert Hall with variable scattering

P105. Akira Omoto, Kohta Sugiura, Visualization and evaluation of reflections inside an enclosed space using sound intensity measurement
Posters - Sunday

P121. Juergen Reinhold, Andreas Wagner, Nuovo Teatro dell'Opera, Florence, Italy: Innovative solutions for a seemingly traditional auditorium

P071. Niels Adelman-Larsen, New On/Off absorption technology that includes low frequencies

P107. Hoshi Kazuma, Hiroyuki Okubo, Jun Kanda, Takumi Asakura, Atsushi Marui, A study to establish benchmarks for acoustical parameters derived from impulse responses

P104. Iara Cunha, Roberta Smiderle, Stelamaris Bertoli, Influence of sound reinforcement system on acoustical performance in a Catholic Church

P062. Roger Schwenke, Steve Ellison, Pierre Germain, Active acoustics in physically variable spaces

P048. Young-Ji Choi, Dae-Up Jeong, John Bradley, The effects of occupancy on theatre chair absorption characteristics

P087. Ingo Witew, Dietrich Pascal, Sönke Pelzer, Michael Vorländer, Comparison of strategies to model spatial fluctuations of room acoustic single number quantities

P114. David Kahn, Acoustical design of concert halls with small seating capacities

P082. Lamberto Tronchin, Andrea Venturi, Angelo Farina, Amendola Alberto, Implementing a spherical microphone array to determine 3-D sound propagation in the 'Teatro 1763' in Bologna, Italy

P051. Ayumi Ishikawa, Takane Terashima, Yasunobu Tokunaga, A basic study on possibility to improve stage acoustics by active method


P113. Bård Støfringsdal, Desired room acoustical response for amplified music

P057. Jeremy Rouch, Isabelle Schmich-Yamane, Marie-Annick Galland, Under-balcony acoustics improvement with simple electro-
P050. Martin Guski, Michael Vorländer, Noise compensation methods for room acoustical parameter evaluation

P088. Remy Wenmaekers, Constant Hak, Early and Late Support measured over various distances: the covered versus open part of the orchestra pit

P005. Carlos Jiménez Dianderas, Comparison of the acoustical behaviour of colonial churches of three architectural styles in Peru

P049. Sakari Tervo, Jukka Pätynen, Philip W. Robinson, Lokki Tapio, Spatial analysis of concert hall impulse responses

P080. Hansol Lim, Hyung Suk Jang, Yong Hee Kim, Jin Yong Jeon, Effects of stage volume on concert hall acoustics as a design element

P043. Tomas Mendez Echenagucia, Arianna Astolfi, Mario Sassone, Louena Shtrepi, Arthur Van Der Harten, EDT, C80 and G driven auditorium design

P020. Massimo Garai, Simona De Cesaris, Dario D. Orazio, Spatial distribution of monaural acoustical descriptors in historical Italian theatres

P017. Daniel Protheroe, Bernard Guillemin, 3-D impulse response measurements of spaces using an inexpensive tetrahedral microphone array

P022. Salvador Cerdá, Segura Jaume, Giménez Alicia, Cibrián Rosa, Radha Montell, Sound quality maps of halls for classical music

P128. Tor Halmrast, When source is also receiver

Posters - Monday

P125. Keiji Kawai, Kosuke Kato, Kanako Ueno, Tetsuya Sakuma, Experiment on adjustment of piano performance to room acoustics: Analysis of performance coded into MIDI data

P123. Matthew Lella, Andrea Tocchini, Refinements in raytracing technique for room shaping

P116. Kazuma Hoshi, Toshiki Hanyu, Theoretical modeling of room shape for ray tracing simulation
P111. Yong Hee Kim, Yoshiharu Soeta, Design of diffusive surfaces for improving the sound quality of underground stations

P100. Thomas Wulfrank, Yann Jurkiewicz, Eckhard Kahle, Design-focused acoustic analysis of curved geometries using a differential raytracing technique

P099. Thibaut Carpentier, Markus Noisternig, Olivier Warusfel, Parametric control of convolution based room simulators

P120. Paul Luizard, Catherine Guastavino, Brian F.G. Katz, Perception of reverberation in coupled volumes: discrimination and suitability

P097. Thineshan Kathirchelvan, Prasanth Nair, Shape Optimization using NURBS Definition of Acoustic Reflectors

P117. Anne Guthrie, Terence Caulkins, Sam Clapp, Jonas Braasch, Ning Xiang, Using Ambisonics for stage acoustics research

P083. Sönke Pelzer, Dirk Schröder, Lukas Aspöck, Michael Vorländer, Interactive real-time simulation and auralization for modifiable rooms

P092. Constant Hak, Remy Wenmaekers, Room in room acoustics: Using convolutions to find the impact of a listening room on recording acoustics

P065. Shin-ichiro Koyanagi, Takayuki Hidaka, Toshiyuki Okano, The error analysis and correction of the reflection calculation for the FDTD method

P044. Milos Markovic, Søren Krarup Olesen, Dorte Hammershøj, Room acoustics modelling using a point-cloud representation of the room geometry

P038. Philip W. Robinson, Samuel Siltanen, Tapio Lokki, Lauri Savioja, Concert hall geometry optimization with parametric modeling tools and wave-based acoustic simulations

P090. Remy Wenmaekers, Rick de Vos, Constant Hak, Binaural sound exposure to the direct sound of one's own musical instrument

P055. Wieslaw Woszczyk, Jonathan Abel, Doyuen Ko, Travis Skare, Jonathan Hong, Re-creation of the acoustics of Hagia Sophia in Stanford's Bing Concert Hall for the concert performance of Cappella Romana
P079. Ho Cheul Park, Young Sun Kim, Yong Hee Kim, Jin Yong Jeon, Preferred Acoustical Conditions for Musicians on Stage with Orchestra shell in multi-purpose halls

P053. Uwe Stephenson, The effects of scattering surfaces on the reverberation Time and Flutter Echoes in rectangular rooms

P054. Rob Opdam, Diemer de Vries, Michael Vorländer, Locally or non-locally reacting boundaries: Does it make a significant acoustic difference?

P036. Louena Shtrepi, Arianna Astolfi, Monika Rychtáriková, Influence of a volume scale factor on the scattering coefficient effects for the prediction of room acoustic parameters

P126. Marco Palma, Maddealena Sarroto, Tomas Mendez Echenagucia, Mario Sassone, Arianna Astolfi, Sound strength driven parametric design of an acoustic shell in a free field environment

P037. Hyun-Kyung Joo, Dae-up Jeong, Subjective evaluation of reverberation with a non-exponential sound decay

P031. Dae-Up Jeong, JeongSu Kim, Young-Ji Choi, The subjective effect of random-incidence scattering coefficients

P018. Young-Ji Choi, An optimum combination of absorptive and diffusing treatments for classroom acoustic design

P021. Alan Boyd, William Whitmer, Michael Akeroyd, Recording and analysis of head movements, interaural level and time differences in rooms and real-world listening scenarios

P011. David Griesinger, Physiologically based measures of clarity and engagement

P006. Alejandro Bidondo, Neuroacoustics: Study on the perception of stereo reverberant sound field at the cortical level