WEDNESDAY 27 SEPTEMBER 2023

17:00 Early registration and meet up at the bar at the Athens Marriott Hotel

19:00 Registration closes

THURSDAY 28 SEPTEMBER 2023

09:00 Refreshments and Registration

10:20 Welcome: Raf Orlowski, Conference Chair

10:30 Acoustical challenges in horse shoe shaped opera houses
Anders Christian Gade, Gade & Mortensen Akustik, Denmark

10:50 Subjective listening studies conducted by Arup at a leading Western opera house
Philip Wright, Arup, UK

11:10 Absence of seat-dip in the stalls of the Teatro Colón in Buenos Aires
Gustavo Basso, National University of La Plata, Argentina

11:30 Teatro São Carlos – another opportunity for improvement of the main Portuguese Opera House
Octávio Indaco & Daniel José, InAcoustics, Portugal

11:50 Refreshments & Posters

12:10 The design of the opera theater auditorium and a reflection on the reciprocal influence between opera house and concert hall design
Alban Bassuett, Arup, USA

12:30 Flexible acoustics and sound system design to accommodate programming inside and outside the Venue Spaces
Ryan Bizorek, Arup, USA

12:50 The Architectural Design of the Stavros Niarchos Foundation Cultural Center
Vassily Laffineur, RPBW Architects, France

13:10 Lunch & Posters

14:00 Auditorium Visit

15:00 Sound isolation and HVAC noise control: design versus practical challenges and constructability
Rachid Abu-Hassan, Arup, USA

15:20 Thoughts on whole stage imaging for theatres
Peter Exton, Marshall Day Acoustics, Australia

15:40 Perception of musical dynamics: orchestra spectra combined with auditory modeling
Tapio Lokki & Pedro Llado, Aalto University, Finland

16:00 Biometric evolution of space
Paul Bavister, University College London, UK

16:20 Refreshments & Posters

17:00 Good view or good acoustics? Can I have both?
Yuxiao Chen, Marshall Day Acoustics & Densil Cabrera, University of Sydney, Australia

17:20 Music, room, two ears, design and paradigms
Magne Slaålevik, AKUTEK and Brekke & Strand, Norway

17:40 The influence of early reflection surface size in concert halls
Evan Green, Vincent Berrier, Thomas Wulfrank, Eckhard Kahle, Kahle Acoustics, Belgium

18:00 Close
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>09:00</td>
<td>Refreshments</td>
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<tr>
<td>09:00</td>
<td><strong>Concert Hall Acoustics</strong></td>
<td>Chair: Mike Barron</td>
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<td>09:30</td>
<td>Acoustic effects of long-delayed reflections from rear walls in a shoebox hall</td>
<td>Toshiki Hanyu, Akane Kawai, Ryoichi Suzuki, Kazuma Hoshi, Nihon University, Japan</td>
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<td>09:50</td>
<td>Why do large concert halls need to be optimized for early reflection coverage?</td>
<td>Eckhard Kahle, Yann Jurkiewicz, Evan Green, Vincent Berrier, Kahle Acoustics, Belgium</td>
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<td>10:10</td>
<td>Zone to zone reflector optimisation using a genetic algorithm</td>
<td>John O’Keefe, O’Keefe Acoustics, Canada</td>
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<td>10:30</td>
<td>Early reflector geometry optimization methodology</td>
<td>Alexandros Galatas &amp; Konstantinos Dadiotis, ACC Acoustics Consultancy Company, Greece</td>
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<td>10:50</td>
<td>Refreshments &amp; Posters</td>
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<td>11:40</td>
<td>Acoustics upgrade for the Concert Hall of the Sydney Opera House</td>
<td>Gunter Engel &amp; Jürgen Reinhold, Müller-BBM Building Solutions, Germany</td>
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<td>12:00</td>
<td>Transforming David Geffen Hall – a story of the world’s most infamous concert hall</td>
<td>José A. Nepomuceno, Akustiks, Brazil &amp; Christopher N. Blair, Akustiks, USA</td>
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<td>12:20</td>
<td>Fine tuning of Sibelius Hall stage acoustics</td>
<td>Petri Lehto, Henrik Möller, Jukka Pötynen, Javier Gómez Bolaños, Perttu Laukkanen, Sara Vehiäinen, Akukon, Finland</td>
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<td>12:40</td>
<td>Listening and dynamics – some challenges with a highly absorptive stage environment</td>
<td>Svein Folkvord, COWI, Norway</td>
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<td>13:00</td>
<td>Appreciation of Russell Johnson 1923-2007 Acoustician and Architect</td>
<td>Bob Essert &amp; Anne Minors, Imagine Sound, UK</td>
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<td>13:10</td>
<td>Lunch</td>
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<td>13:10</td>
<td>Classical Theatres</td>
<td>Chair: Raf Orlowski</td>
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<td>14:10</td>
<td>Connection between iconography and reverberation performance of Byzantine temples: experimental investigation</td>
<td>Panagiotis Karampatsakis, Aristotelian University, Greece</td>
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<td>14:30</td>
<td>How did Epidaurus sound when it was full? Directional measurement of impulse response for an improved computer model</td>
<td>Ian Rees, Adrian James Acoustics Ltd, UK</td>
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<td>14:50</td>
<td>Open-air Amphitheatre in Andros</td>
<td>Konstantinos Dadiotis, Alexandros Galatas, ACC Acoustics Consultancy Company, Koula Kandylatou, Kostas Loukas, K Loukas and Partners, Greece</td>
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<td>15:10</td>
<td>The acoustic design of Amphitheatre Ioannis Despotopoulos in Athens Conservatoire, Athens, Greece</td>
<td>Theo I. Niaounakis, Theta Acoustics, UK</td>
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<td>15:30</td>
<td>Refreshments &amp; Posters</td>
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<td>16:30</td>
<td>A 350 seats concert hall auditorium with ‘budget’ version concrete side walls: acoustics design and performance</td>
<td>Andrzej Klosak, Cracow University of Technology, Poland &amp; Anders Christian Gade, Gade &amp; Mortensen Akustik, Denmark</td>
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<td>16:50</td>
<td>In situ acoustic efficiency of variable broadband absorption in music rehearsal studio’s and music halls</td>
<td>Maarten Luykx, Peutz Consultants, Netherlands</td>
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<td>17:10</td>
<td>Optimizing (too) small ensemble rehearsal rooms for acoustic loud music</td>
<td>Bård Støfringsdal, COWI AS, Norway</td>
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<td>17:30</td>
<td>The research behind the design of a new variable acoustics technology</td>
<td>Niels W. Adelman-Larsen, Flex Acoustics, Denmark</td>
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09:00 Refreshments

Measurements
Chair: Tapio Lokki

09:30 Size matters: new ways of working with scale models
Brian FG Katz, Peter Stitt & Antoine Weber, Sorbonne University, France

09:50 Auralization of orchestra based on 1/10 scale model experiment
Takayuki Hidada, Kazunori Suzuki & Shin-ichiro Koyanagi, Takenaka Research & Development Institute, Japan

10:10 Immersive auralisation for choral ensembles
Sarabeth S Mullins & Brian FG Katz, Sorbonne University, France

10:30 A software tool for auralization of simulated sound fields
Jens Ahrens, Chalmers University of Technology, Sweden

10:50 Refreshments & Posters

Measurements & Theory
Chair: Evan Green

11:50 Measurements in room acoustics – How good are we at it?
Ingo B. Witew & Michael Vorländer, RWTH Aachen University, Germany

12:10 Lateral fraction or cross-correlation for spatial impression?
Mike Barron, Consultant, UK

12:30 Revisiting Sabine’s formula
Jean-Dominique Polack, Sorbonne University, France

12:50 Efficiency and uncertainties of sound energy decay analysis in auditoria
Ning Xiang, Rensselaer Polytechnic Institute, USA & Zuhre Su-Gul, Bilkent University, Turkey

13:10 Lunch

Intelligibility
Chair: Alban Bassuet

14:10 Imagine sound – Combining natural acoustics and audio in a debating chamber
Bob Essert, Imagine Sound, UK

14:30 Round and round we go: Intelligibility and localization for in-the-round spaces
Luca Deliotto, Charcoalblue, UK

14:50 The Shakespeare North – Acoustic design of a Jacobean Theatre in Liverpool
Onur Gullen, AECOM, UK

15:10 Covid, separation & all that Jazz
Anne Minors, Imagine Sound, UK

15:30 Refreshments & Posters

Active Acoustics
Chair: Bob Essert

16:30 Room acoustic measurements in halls with electro–acoustic enhancement systems
Henrik Möller, Aalto University, Finland and Łukasz Blasiński, Adam Mickiewicz University, Poland

16:50 Evaluation of a geometric approach to active acoustics
Volker Werner, Fabio Kaiser, Clemens Frischmann, Amadeus Acoustics, Austria

17:10 A comparison of musical performances in different acoustic environments created with an active acoustics system
Benedikt Roß, Amadeus Acoustics, Germany

17:30 The significance of excellent concert hall acoustics for audio recordings of classical music
Pauline Heister, University of Music and Performing Arts Vienna, Austria

17:50 Room acoustic design of a 15000-capacity multipurpose arena
Perttu Laukkanen, Janne Rionheimo, Jukka Pätyinen, Akukon, Finland

18:10 Closing Remarks

18:20 Close of Conference

Thursday Posters

Remedial Acoustics in Monumental Lecture Auditoria of Neoclassicism in Athens
George Xanthoulis, Atkins, UK, Giannis Karagiannis, George Poulakos & Alexandra Sotiropoulou, National Technical University of Athens, Greece

Acoustic discovery of the Roman theatre of Volterra: two reconstruction hypotheses in comparison
Antonella Bevilacqua, Wladek Fuchs, University of Parma, Italy

Acoustic Assessment of Argos Ancient Theatre in Greece
George Cambourakis, Giannis Karagiannis, Alexandra Sotiropoulou, Panos Koukoutas, National Technical University of Athens, Greece

Homerian sounds: recording, classification and comparison of sound phenomena in Iliad and Odyssey
Ilia Papegeorgiou, NTUA, Greece; Fotis Papegeorgiou, GISMA University of Applied Sciences, Germany

Classical auditoria in the Mediterranean of universally acknowledged acoustics: evaluation of the use of electroacoustic amplification
Giasemi Kilaidoni, Actress, Alexandra Sotiropoulou, Giannis Karagiannis, National Technical University of Athens, Greece

New Academy of Music in the suburbs of Athens: architectural language and acoustical solutions
Alkaterini Bouika Alexaki, Tasis Papaioannou, Giannis Karagiannis, Alexandra Sotiropoulou, National Technical University of Athens, Greece
Chopin musical scales: architecture and acoustic design of new opera house in Poland
Kassandra Christoula, Elora Christoula, Vassiliki Giannoutsiou, Vassilios Ghikapeppas, Giannis Karagiannis, Alexandra Sotiriopoulou, National Technical University of Athens

Sound strength measurements using a pre-calibrated omni-directional source
George Koutsouris, Claus Lynghe Christensen, Antoine Richard, Jens Holger Rindel, Odeon, Denmark

Development of an omnidirectional source for acoustical scale-model measurements
Etienne Lorochelle, Vincent Berrier, Thomas Wulfrank, Evan Green, Kahle Acoustics, Belgium

Friday Posters

Converting an office building into a Chamber Hall – the CBSO Academy, West Bromwich, UK
Michael Whitcroft, Hoare Lea, UK

Acoustic renovation of a circular-shaped small music hall
Ok Cheol Ahn, Yong Hee Kim, Youngsan University, Republic of Korea, Sang Eun Jeon, Pusan National University, Republic of Korea

Measurements of auditorium seats “in the time of Cholera” – challenges in design concert hall auditorium seats during pandemic
Andrzej Klosak, Cracow University of Technology, Poland; Anders Christian Gade, Gade & Mortensen, Akustik, Denmark; B Ziarka, Cracow University of Technology, Poland

Brazilian performing arts center acoustical and architectural database
José Augusto Nepomuceno, Acústica & Sônica, Brazil; Akustiks, USA

Placement of absorption material: DIN 18041 is totally misleading
Tapio Lokki, Aalto University, Finland

Room acoustics mismatches of rehearsal spaces and concert halls and their impact on music performance
Giorgos Dedousis, Konstantinos Bakogiannis, Areti Andreadou, Anastasia Georgaki, National and Kapodistrian University of Athens, Greece

Single-value frequency-average measures of early decay time and clarity index to predict reverberance and clarity
Fernando Del Solar Dorrega & Michelle C Vigeant, Penn State University, USA

On the seat-dip effect and seating area design
Henna Tahvanainen & Tapio Lokki, Aalto University, Finland

A method for automated system calibration in active acoustics systems
Clemens Frischmann, Fabio Kaiser, Volker Werner, Gernot Kubin, Armadeus Acoustics, Austria

Saturday Posters

herisSon – an innovative tool for Spatial Room Impulse Response (SRIR) measurements
Serafino Di Rosario, Johan Sick, Romain Darracq, Sylvain Guittton, LINK Acoustique, France

Concert halls in virtual reality – From audio-visual perception to a common vocabulary
Janas Heck, Josep Llorca-Bofí, Michael Vorländer, RWTH Aachen University

Improvement of stage-to-pit balance using computer simulation in a multi-purpose hall without an orchestra pit
Sang Eun Jeon, Pusan National University, Republic of Korea and Yong Hee Kim, Youngsan University, Republic of Korea

Finding early Time Limits with Nonlinear Regression on Energy Decay Curves
Chang-Qing Xia, Hong Kong Polytechnic University, Hong Kong

Using non-wave based modelling to explore how much acoustic diffusion is too much in a concert hall
Michael Fort, Ramboll, UK

Objective room acoustics parameters and the use of simple mathematical formulas as design inducers: a practical tool for architects in the beginning of performance halls design
Lineu Passeri Junior, Passeri Acústica, Brazil; Stelamaris Rolla Bertoli, University of Campinas, Brazil

Subjective localization of a sound source in immersive sound system and stereophonic loudspeakers system
Łukasz Błański, Adam Mickiewicz University, Poland

Comparing measured sound strength to theory as a function of reverberation time and room volume
Joshua Dunham, Tenor Engineering, USA

Spatial articulation and acoustics: an educational perspective
Kalliopi Chourmouziadou, International Hellenic University, Greece