Technical Sessions

Monday, August 27, 2018

14.1 Numerical Methods and Simulation - Advances in

Monday, 09:00 – 17:40, 4th Floor, Addison

Chairs: Steffen Marburg, Tim Wu, Chandramouli Padmanabhan, and Chad Musser

09:00 **1456** **Numerically Solving the Biot Equations for Sound Absorbing Materials Using a Wave Expansion Method**
Ciarán O'Reilly; Olivier Dazel; Gwendal Gabard

09:20 **1348** **Vibration Analysis of Laminated Composite Rectangular Plates with General Boundary Conditions**
Yu Fu; Jianjun Yao; Zhenshuai Wan; Gang Zhao

9:40 **1618** **Free Vibration Analysis of Arbitrary Triangular Laminated Composite Plates with General Boundary Conditions**
Lu Yanming; Liu Tao

10:00 **1298** **Research on Optimization Algorithm of Bidirectional Evolutionary Structure Based on Stiffness Optimization**
XiaoYan Teng; BingKun Mao; HeTao Zhao; XuDong Jiang

10:20 **Coffee Break**

10:40 **1899** **Overview of Structural-Acoustic Modal Analysis under Random Loading**
Shung H. (Sue) Sung; Donald J. Nefske

11:00 **1769** **A Study of the Frequency and Shape Dependency of Acoustic Radiation Modes**
Jiawei Liu; Yangfan Liu; J. Stuart Bolton

11:20 **1797** **Application of the Energy Based Finite Element Method for Acoustic Calculations in the High Frequency Range**
Boris Dilba; Otto von Estorff; Henning Lohmann; Olgierd Zaleski

11:40 **2148** **Prediction of Radiated Noise Generated by Compact Acoustic Sources and Vibrating Systems**
Abderrazak Mejdi; Bryce Gardner; Chad Musser

12:00 **Lunch on Your Own**

13:40 **1479** **A Low-Rank Iteration Scheme for Multi-Frequency Acoustic Problems**
Suhaib Baydoun; Lei Li; Matthias Voigt; Steffen Marburg

14:00 **1461** **An Improved Method for Dynamic Load Identification Based on Tikhonov Regularization**
Zhanpeng Zheng; Chengjun Wu

14:20 **2149** **Prediction of Acoustic Response using Ray Tracing in the Presence of Complex Shaped Obstacles**
Abderrazak Mejdi; Bryce Gardner; Chad Musser

14:40 **1345** **An Artificial Bee Colony Algorithm For Solving Hydraulic Shaking Table Acceleration Harmonic Estimation**

Problem
Jianjun Yao; Zhenshuai Wan

15:00 **2104** **Noise Shielding Models for the Conceptual Design of Unconventional Aircraft**
Francesco Centracchio; Lorenzo Burghignoli; Monica Rossetti; Umberto Iemma

15:20 **2276** **Vibration Mode Localization in Rectangular Plates with V-Shaped Through Cracks**
Tianming Huang; Huancai Lu; D. Michael McFarland; Wen L. Li; Chin An Tan; Lawrence A. Bergman; Alexander F. Vakakis

15:40 **Coffee Break**

16:00 **1416** **A Comprehensive Analysis Process for Vehicle Impact-Harshness Performance Assessment**
Paras Shah; Raghav Hanumantharayappa; Parimal Tathavadekar

16:20 **1429** **A Comparison of Ground Surface Exciters for Locating Buried Pipelines**
Boao Jin; Yan Gao; Xiwang Cui; Yuyou Liu

16:40 **2233** **Approximate Analytical Solution of Nonlinear Natural Frequencies of a Functionally Graded Material Microbeam by using Multiple Harmonic Balance Method**
Canan Uz; Ender Cigeroglu

17:00 **2305** **Multi-Objective Optimal Design of Launch Pad by Empirical Prediction Method Combined with NURBS Modeling and Genetic Algorithm**
Seoryong Park; Soogab Lee; Dongyeon Han

17:20 **2327** **The Effect of Hydrostatic Loading on the Vibration Response of a Plate: Investigative Study**
Kyle Saltmarch; Jie Pan; David Matthews

18.1 Tire and Road Noise - Advances in

Monday, 09:00 – 12:20, 4th Floor, Armitage

Chairs: Ulf Sandberg, Tyler Dare and Paul Donavan

09:00 **1857** **Spectral Analysis of the Acoustical Performance of Winter Tires for Different Road Textures, Test Speeds and Tire State-of-Wear**
Tiago Vieira; Ulf Sandberg

09:20 **2169** **NordTyre - Noise Reduction Potential in Nordic Countries by Introduction of EU Tyre Label**
Rasmus Stahlfest Holck Skov; Hans Bendtsen; Ulf Sandberg

09:40 **1474** **A Comparison Between Modal and Wave Propagation Models for Simulation of Tire-Pavement Interaction Noise**
Sterling McBride; Ricardo Burdisso; Corina Sandu

10:00 **2206** **A Study of Groove Pulsation Noise Reduction by Simple Aerodynamic Modelling of a Tire Rolling on Porous Pavement**
Masao Ishihama; Kosuke Miyoshi

10:20 **Coffee Break**

10:40 **1639** **Input Power Estimation to Tire due to Tire-Road Interference for Tire and/or Road Labeling**
Toru Yamazaki; Kaito Sawada; Hiroki Nakamura; Atsushi Kitahara

11:00 **1559** **Diagnosis of Tire Vibration Noise Based on a Smart Tire System**
Yan Wang; Yintao Wei

11:20 **1837** **Developing Evaluation Model of Tire Pattern Impact Noise**
Wataru Takahashi; Nobutaka Tsujiuchi; Akihito Ito; Hamiyu Seki; Kazumasa Hosomi

11:40 **2108** **An Image Based Computational Model to Predict Air Pumping Noise in Rolling Tires**
Shivashish Gupta; Madhav Londhe; Sharad Goyal; Chirag Patel; Nachiketa Tiwari

12:00 **1501** **Models of Tire-Road Contact Deformation and Cavity Acoustics for Rolling Resistance and Road Noise**
Masao Ishihama; Keisuke Matsumoto; Kosuke Miyoshi; Isoharu Nishiguchi

12:20 **Lunch on Your Own**

18.2 Tire and Road Noise - Pavement Noise

Monday, 14:00 – 16:20, 4th Floor, Armitage

Chairs: Anneleen Bergiers, Dana Lodico

14:00 **1719** **Development of Suitable Low Noise Road Surfacing Materials on Local Roads in Hong Kong**
Cho Shing Leung; Wai Chau; Chee Kwan Lee; Kwok Keung Lau

14:20 **1365** **Acoustical Longevity and Durability of Pavements**
Dana Lodico; Paul Donavan

14:40 **1876** **Acoustic Lifecycle Study of the Double-Layer Porous Asphalt on E4 in Huskvarna, Sweden**
Ulf Sandberg; Piotr Mioduszewski

15:00 **Coffee Break**

15:20 **1424** **Pilot Study in Antwerp to Study the Acoustical Quality and Durability of Thin Noise Reducing Asphalt Layers in an Urban Environment**
Anneleen Bergiers; Johan Maeck

15:40 **1601** **Investigation of the Sound Power Level Equation for Concrete Pavement**
Iori Yasuda; Hisho Mori; Tomotaka Ueta; Kenichi Ishikawa; Motoomi Yoshida; Shiro Kabashima

16:00 **1918** **An In-Depth Look at the Tire Rubber Hardness Influence on Tire/Road Noise Measurements**
Erik Buehlmann; Sebastian Egger

18.3 Tire and Road Noise - Tire Acoustic Cavity Noise

Monday, 16:20 – 17:40, 4th Floor, Armitage

Chairs: Truls Berge, Rui Cao

16:20 **1486** **Experimental Analysis of Tyre Acoustic Cavity Resonance Noise**
Xiaojun Hu; Xiandong Liu

16:40 **1488** **Simulation Analysis of Vibration Response of Tire Inner Surface Applied for Acoustic Cavity Resonance**

Jiajing Yi; Xiandong Liu

17:00 **2059** **Identifying Acoustic Tube Resonance in Tire Noise**
Paul Donavan

17:20 **1367** **Passband Analysis of Tire-Pavement Noise**
Michael Staiano

17:40 **1482** **Tire Cavity Induced Structure-Borne Noise Study with Experimental Verification**
Rui Cao; J. Stuart Bolton

9.3 Flow Induced Noise and Vibration - Experiments

Monday, 09:00 – 11:40, 4th Floor, Belmont

Chairs: Carsten Spehr

09:00 **1610** **Acoustic Characteristics of High Speed Jets With an Offset Plate**
Harinath Reddy Nakkala; Srinivasan K

09:20 **1546** **Extreme Value Statistics of Flow Induced Noise and Vibration**
Connor McCluskey; Stephen Conlon; Manton Guers

09:40 **1494** **Optical Visualization of Sound Source of Edge Tone using Parallel Phase-Shifting Interferometry**
Risako Tanigawa; Kenji Ishikawa; Kohei Yatabe; Yasuhiro Oikawa; Takashi Onuma; Hayato Niwa

10:00 **1613** **Overview of Recent Flow Induced Sound and Vibration Experimental Works at Groupe d'Acoustique de l'Universite de Sherbrooke**
Olivier Robin; Alain Berry

10:20 **Coffee Break**

10:40 **1397** **Measurement and Mode Analysis of Flow Induced Noise Radiated from Forward- and Back-Step with Combined Proper Orthogonal Decomposition Analysis**
Osamu Terashima

11:00 **1284** **Blower's Pulsation Dampener using Reactive Silencers**
Paul Liang

11:20 **1547** **Low Wavenumber Pressure Content of Turbulent Boundry Layer Flows**
Richard DeJong, Paul Bootsma, Kurtis Devries, Steven Sorenson

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7.1 Community Noise - Advances in

Monday, 9:00 AM – 10:40 AM, Chicago A

Chairs: Trond Maag, Margit Bonacker

09:00 **2082** **New Strategies for Sound in the Public Realm: Integrating a Publicly-Controlled Sound Installation in an Active City Square**
Sven Anderson

09:20 **1856** **Everyday Quiet Areas: What They Mean and How They Can be Integrated in Noise Action Plans**
Antonella Radicchi

09:40 **1873** **Key Elements Related to Context and Morphology for the Acoustic Design of Urban Environments**
Arnthrudur Gisladottir; Trond Maag; Lea Louise Holst Laursen; Poul Henning Kirkegaard

10:00 **1590** **Can Participatory Experience Performances Co-Create Qualification and Design of Audible Public Realm?**
Trond Maag; Rikke Munck Petersen

10:20 **2281** **Avoiding Neighbors Complaints because of Construction Site Noise**
Margit Bonacker

10:40 **Coffee Break**

7.2 Community Noise - Urban Sound Planning

Monday, 11:00 AM – 3:00 PM, Chicago A

Chairs: Luigi Maffei, Dick Botteldooren

11:00 **1498** **Objective And Subjective Assessment of Pockets of Quiet Inside Historical Urban Areas**
Luigi Maffei; Roxana Adina Toma; Massimiliano Masullo

11:20 **1935** **Sounds in the City: Differences in Urban Noise Management Strategies across Cities**
Christopher Trudeau; Daniel Steele; Romain Dumoulin; Catherine Guastavino

11:40 **1628** **Screening Noise Analysis with Preliminary Building Project Information**
Mark Storm

12:00 **1927** **Early Stage Sound Planning in Urban Re-Development: The Antwerp Case Study**
Dick Botteldooren; Luc Dekoninck; Camille Meeussen; Timothy Van Renterghem

12:20 **Lunch on Your Own**

13:40 **1785** **The Blue Noise Promenade - A Large-Scale Model for Bringing Sound into the Urban Planning and Design Agenda of the Limmat Valley Zurich**
Trond Maag; Andres Bosshard

14:00 **1938** **Crowdsourcing Soundscape Information from Smartphones**
Yalcin Yildirim

14:20 **1863** **Acoustic Planning of Urban Space**
Mario Huaquin

14:40 **1894** **Acoustical Criteria for the Texas Capitol Complex Master Plan**
Jack B Evans

15:00 **Coffee Break**

16.5 Sound Quality and Product Noise - Information Technology Equipment Noise

Monday, 15:20 – 17:00, 5th Floor, Chicago A

Chairs: Seth Bard, Charles Oppenheimer

15:20 **2230** **ISO 10302-1 Under Revision - For More Practical Test Conditions to Simulate Actual Load Conditions of Air-Moving Devices**
Ikuo Kimizuka; Gaku Minorikawa

15:40 **1817** **On the Use of Scale Models for Small-Scale Acoustic Applications**
Nan Zhang; D. W. Herrin

16:00 **1665** **Technical Challenges for High Static Pressure Application of Test Plenum per ISO10302-1 for Small Fan Sound Power Level Measurement**
Hideto Kawahara; Takefumi Nakano; Gaku Minorikawa; Ikuo Kimizuka; Toshiaki Nakayama; Msaharu Miyahara

16:20 **1626** **Study on Identification and Reduction of Aerodynamic Noise Source on Casing in Axial Flow Fan**
Ryouichi Maki; Gaku Minorikawa; Takefumi Nakno; Tae-Gyun Lim

16:40 **1477** **Impulsive Sounds in Printers**
Charles Oppenheimer

3.1 Aircraft Noise - Advances in

Monday, 09:00 – 11:00, 5th Floor, Chicago B

Chairs: Hirokazu Ishii

09:00 **1528** **The Role of Castellations on Pipe Jet Noise**
R Anureka; Srinivasan K

09:20 **1386** **Noise Reduction and Aerodynamics of Airfoils with Porous Trailing Edges**
Thomas Geyer; Ennes Sarradj

09:40 **1691** **Experimental Study on Noise Characteristics and Evaluation of Small Ducted Fan**
Takuya Kuranaga; Gaku Minorikawa; Takufumi Nakano

10:00 **Coffee Break**

10:20 **1606** **Reduction of Impinging Noise Issued from Non-Circular Orifices**
Kabilan Baskaran; Abhijit Dhamanekar; Srinivasan K

10:40 **1510** **Cabin Noise Measurements with Microphone Arrays and Sound Intensity Probes**
Daniel Ernst; Carsten Spehr; Dirk Döbler

3.5 Aircraft Noise - Airport Noise

Monday, 11:00 – 17:00, 5th Floor, Chicago B

Chairs: Idar Granoien, Shinohara Naoaki

11:00 **1991** **Noise Measures for the Enhancement of Airport Function at Narita International Airport**
Saburo Ogata; Daiske Imai; Shinji Hori; Kazuya Tamaki

11:20 **1793** **Effectiveness of Noise Abatement Measures by using Restriction of Reverse Thrust and Noise Embankment on the Side of Runway**
Naoaki Shinohara; Toshiyasu Nakazawa; Yasuaki Kawase; Takatoshi Yokota; Kazuya Tamaki

11:40 **1820** **Noise Indicators for Aircraft Noise Monitoring in Vietnam**
Thu Lan Nguyen; Takashi Yano; Ichiro Yamada; Masaharu Ohya; Koichi Makino; Thi Thanh Vu

12:00 **Lunch on Your Own**

13:40 **1632** **Air Traffic Management and Noise**

Mats Åbom; Karl Bolin; Pernilla Ulfvengren

14:00 **1604** **Performance Based Navigation (PBN) as a Noise Abatement Tool**
Jan Anders Marheim; Paal Hengebol; Michael James Newman

14:20 **2079** **A Study on Aircraft Noise Compensation Criteria of the Environmental Impact Assessment in the Vicinity of the Airports**
JunHyeok Woo; Hyun Sup Kim; JongWon Son; Sang Kyu Park

14:40 **1842** **Single Aircraft Pass-By: Modelling Relevant Noise at Ground**
Peter Houtave; Jean-Pierre Clairbois

15:00 **Coffee Break**

15:20 **1924** **Rotorcraft Noise Prediction Using JAXA's DREAMS Database of Meteorological Effects on Noise Propagation**
Hirokazu Ishii; Takatoshi Yokota; Koichi Makino; Toshio Matsumoto

15:40 **1523** **Noise Sharing at ITAMI**
Yoshiyasu Yukawa; Kenji Matsubara

16:00 **1929** **Noise-Related Charges and the Aircrafts' Noise Performance of the Major Airports**
Toru Takahashi; Naoaki Shinohara

16:20 **1733** **Aircraft Type Identification for Jet Airplanes by Convolutional Neural Network**
Makoto Morinaga; Junichi Mori; Ippei Yamamoto; Takanori Matsui; Yasuaki Kawase; Kazuyuki Hanaka

16:40 **1747** **Relevance of Buildings in Aircraft Noise Predictions**
Felix Schlatter; Micha Köpfli; Jean-Marc Wunderli

17.1 Soundscape and Noise Management - Health and Quality of Life

Monday, 09:00 – 11:20, 5th Floor, Chicago C

Chairs: Irene van Kamp, Andre Fiebig

09:00 **2118** **A Research on Sound Events that are Easy to be Recalled by People - An Analysis of Questionnaire that is Conducted in the Coursework of Acoustics**
Takeshi Akita

09:20 **1602** **Soundscape Design for Management of Behavioral Disorders: A Pilot Study among Nursing Home Residents with Dementia**
Paul Devos; Francesco Aletta; Tara Vander Mynsbrugge; Pieter Thomas; Karlo Filipan; Mirko Petrovic; Patricia De Vriendt; Dominique Van de Velde; Dick Botteldooren

09:40 **2178** **Study on the Anti-Noise Design of Child Care Center - Cases Study of Child Care Centers in Westwood, Los Angeles**
Mengxi Gao; Zaisheng Hong; Yiqian Yuan; Jiangwei Kong

10:00 **Coffee Break**

10:20 **2009** **The Restorative Environmental Sounds Perceived by Children**
Hui Ma; Shan Shu

10:40 **1571** **Sound Emission Level in Spinning Classes and the Influence in the Health of Teachers**

Hetty Lobo; Israel Zica; Samuel Abdelmur ; Felipe Dinato; José Lobo; Clarice Daga; Carlos Luna

11:00 **2016** **Reliability of Wrist-Worn Sensors for Measuring Physiological Responses in Soundscape Assessments**
Bhan Lam; Joo Young Hong; Zhen Ting Ong; Woon-Seng Gan

17.3 Soundscape and Noise Management - Psychoacoustic Evaluation of Environmental Noise / Soundscape

Monday, 11:20 – 12:20, 5th Floor, Chicago C

Chairs: Patricia Davies, Andre Fiebig

11:20 **1340** **Hoover Dam: an Example Focusing Soundscape Contextual Sensations, Realizations and Thought**
Wade Bray

11:40 **2068** **Environment of Railway Station by Field Measurement and Subjective Experiment**
Hyojin Lee; Akiko Sugahara; Shinichi Sakamoto; Yoshiki Ikeda

12:00 **1698** **A Psychoacoustic Approach to Playground Construction in a School Area**
M. Ercan Altinsoy

12:20 **Lunch on Your Own**

17.4 Soundscape and Noise Management - Soundscape in Architecture and Urban Planning

Monday, 14:00 – 16:20, 5th Floor, Chicago C

Chairs: Brigitte Schulte-Fortkamp

14:00 **1997** **Recent Developments in the Standardization of Soundscape**
André Fiebig

14:20 **1555** **Relationship between Impressions of Soundscapes of Parks and Acceptable Sound Levels for Road Traffic Noise**
Koji Nagahata; Rentaro Kakinuma; Ryo Hashimoto; Tsubasa Minegishi

14:40 **1832** **Urban Planning Integrating the Soundscape Approach**
Brigitte Schulte-Fortkamp; Bennett Brooks

15:00 **Coffee Break**

15:20 **1679** **Identifying Sound Sources in terms of Urban Environmental Parameters**
Dongchao Xu; Lei Yu; Jian Kang

15:40 **1994** **Application of Psychoacoustic within Soundscape, the New Challenge for Acoustic Consultants**
Klaus Genuit

16:00 **1597** **Analyzing The Soundscape Of An Urban Park -A Case Of Semmozhi Poonga**
Banu Chitra; Minakshi Jain; Faiz Ahmed

5.2 Building and Architectural Acoustics - Impact and Structureborne Noise in Buildings

Monday, 9:00 – 17:00, 5th Floor, Chicago D

Chairs: Berndt Zeitler, Matthew Golden and Yong-Joe Kim

09:00 **1279** **Minimum Structural Floor Stiffness for Floating Floor Applications**

Angela Waters; Richard Sherren

09:20 **1433** **Prediction of Heavy Weight Drops on Resilient Sports Floors in Existing Buildings**
Matthew Golden; Paul Gartenburg

09:40 **1441** **Lightweight Floating Floor Innovations in Gym/Sports Applications**
Kathryn Katsiroumpas; Patrick Carels; Hamid Masoumi; Jonas Salkauskis

10:00 **Coffee Break**

10:20 **1778** **Description and Calibration of the ISO Tapping Machine in Numerical Impact Sound Predictive Tools**
Cheng Qian; Juan Negreira; Delphine Bard; Sylvain Ménard

10:40 **1703** **Experimental Study on the Reduction Performance of Floor Impact Sound according to Reduction Method of Floor Structure Layers in Aged-Apartment**
Cho Hyun-Min; Kim Sin-Tae; Kim Myung-Jun

11:00 **1538** **Numerical Prediction of Impact Sound in Dwellings from Low to High Frequencies**
Pengchao Wang; Cédric Van Hoorickx; Arne Dijckmans ; Geert Lombaert; Edwin Reynders

11:20 **2213** **Evaluation of Receiving Room Diffusivity and the Effect on Low Frequency Impact Insulation Class**
Andrew Barnard; Sunit Girdhar; Miles Penhale; Carey Widder

11:40 **1533** **Modal Sampling Technique on Reception Plate to Characterize Structure-Borne Sound Source**
Berndt Zeitler; Steffi Reinhold; André Jakob; Carl Hopkins

12:00 **1444** **Acoustic Studies of Glacier, Karst and Lava Caves**
Janusz Piechowicz; Dorota Czopek; Pawel Malecki; Jerzy Wiciak

12:20 **Lunch on Your Own**

13:40 **1379** **Silencing the Undesired Heartbeat in a Semi-Anechoic Room**
Randy Rozema; Brett Birschbach

14:00 **1989** **Reduction of Floor Impact Sound by Applying Sound Absorbing Material and Changing Slab Structure**
Kyoung woo Kim; Hey-Kyung Shin; Kwan-Seop Yang

14:20 **2086** **Floor Impact Sound Insulation and Airborne Sound Insulation on CLT Model Building**
Atsuo Hiramitsu; Takahiro Tsuchimoto; Shinsuke Kurumada

14:40 **1341** **Examination of Vibration Evaluation Scale Considering Duration on Vibration Sense for Floor in Buildings**
Ryuta Tomita; Katsuo Inoue

15:00 **1642** **Relation between Sound Radiation from Airborne-Sound and Point-Force Excitations of a Double-Leaf Plate**
Motoki Yairi; Kimihiro Sakagami; Takeshi Okuzono

15:20 **Coffee Break**

15:40 **1692** **The Study on Characteristics of Floor Impact Noise**
Xiaoyan Xue

16:00 **2088** **Reduction of Heavy-weight Floor Impact Sound by Granular Materials on Ceiling**
Takashi Yamauchi; Shuta Kawamata

16:20 **2075** **Charateristics of Sound Insulation of MRI (Magnetic Resonance Imaging) Rooms in Hospital**
Wonhak Lee; Jihoon Park; Yongjin Yoon; Juho Kim

16:40 **2084** **Annoyance Evaluation of Floor Impact Sounds with Temporal and Spatial Variation in VR Environments**
Hyun In Jo; Jung In Woo; Shahzad Ahmed; Jin Yong Jeon

5.6 Building and Architectural Acoustics - Building Acoustics Measurement

Monday, 09:00 – 12:20, 5th Floor, Chicago E

Chairs: Jeanette Hesedahl, Bruce Lachey

09:00 **2222** **A Statistical Method for Parameter Estimation from Shroeder Decay Curves**
Hanna Autio; Delphine Bard

09:20 **2163** **Assessing Noise Levels in University of Sharjah Classrooms using Measurements and Predictive Models**
Hussein Elmehdi

09:40 **1443** **Building Interior Noise and Vibration Isolation Measurement**
Tungchen Chung

10:00 **1998** **Acoustic Measurements of Duct and Duct Liner Materials**
Kevin Herreman; Corey Taylor

10:20 **Coffee Break**

10:40 **2166** **Field Measurements of a Demising Wall using an Intumescent Deflection Track and Exposed Concrete Ceiling**
Christopher Hoying

11:00 **1891** **In-Situ Acoustic Absorption of a Living Green Wall**
Anna Romanova; Kirill V. Horoshenkov

11:20 **1700** **Experimental Study on Sound Insulation Performance of Partition Walls Joined to Steel Beams**
Tomohiro Oda; Yasuhito Fujisawa; Mitsutoshi Watanabe

12:00 **1732** **Sound Field Acquiring and Reproducing System for Auditorium Acoustics**
Akira Omoto

12:20 **Lunch on Your Own**

5.12 Building and Architectural Acoustics - Measurement Methods

Monday, 13:40 – 17:20, 5th Floor, Chicago E

Chairs: John Davy, Jean-Luc Kouyoumji

13:40 **1790** **Acoustic Quality Evaluation of Voice Booths Using 1/3rd Octave Band Frequency Response**
Carolina Monteiro; Marcel Borin; Vito Romanelli

14:00 **1872** **Study Case on the Acoustic Quality of Classrooms in Brazil**
André Raeder; Marcel Borin; Marcela Nakasato; Marcos Holtz

14:20 **1966** **The New Acoustic Design Challenges in Active Learning Classrooms**

Shiva Hadavi; Joonhee Lee

14:40 **2223** **Acoustically Conserving the Worship Heritage of Nossa Senhora De Penha De Franca Church, Goa**
Menino Allan Tavares; António P. O. Carvalho; Buland Shukla

15:00 **Coffee Break**

15:20 **1392** **Look ~ Do You See The Noise Leaking Through That Ceiling?**
Gary Madaras

15:40 **1388** **SonicLQ: An Acoustic Method for Locating and Sizing Air Leaks in Building Envelopes**
Ralph Muehleisen; Kanthasamy Chelliah

16:00 **1349** **Laboratory Measurement of Aerodynamic Noise Emitted from Cladding and External Components of Buildings**
Kiyoshi Masuda; Ryu Tomitaka; Yukiko Hamada

16:20 **1638** **Review and Comparison of ASTM and ISO Standards on Sound Transmission in Buildings**
Christoph Hoeller

16:40 **2007** **Gauge Repeatability and Reproducibility Study of Airborne and Impact Insulation of Floor-Ceiling Assemblies**
Wayland Dong; John LoVerde

17:00 **1771** **A Study on In-Situ Method of Measuring Acoustic Properties of Materials by using a Parametric Loudspeaker – Reduction of Pseudo Sound due to High Pressure Ultrasound**
Akiko Sugahara; Hyojin Lee; Shinichi Sakamoto; Shigeto Takeoka

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5.4 Building and Architectural Acoustics - HVAC Equipment and System Noise

Monday, 09:20 – 11:40, 5th Floor, Chicago E

Chairs: Paul Bauch, Erik Miller-Klein

09:20 **1867** **Noise Transmission from a Small, Hermetic, Reciprocating Compressor**
John Cunsolo; Timothy Brungart; Stephen Hambric

09:40 **1963** **Vibration Isolation of Fans in HVAC Equipment**
Curtis Eichelberger; Paul Bauch

10:00 **2138** **Rooftop HVAC Unit Mega Duct Attenuator**
Jim Borzym

10:20 **Coffee Break**

10:40 **1636** **Analysis of Air Conditioner Sound Quality Based on Electrical Components**
Byoungha Ahn; Daekyu Lim; Sunhwa Park

11:00 **2212** **Experimental and Numerical Investigation into Flow and Noise Performances of Pipe Flow Driven by Centrifugal Ice-Making Fan in Household Refrigerator**
Mijeong Shin; Cheolung Cheong; Tae-Hoon Kim; Sang-Tae Kim

11:20 **2049** **Effect of Reflections on HVAC Systems Power-Based Acoustic Simulation**
Mina Nashed; Tamer Elnady; Mats Åbom

11:40 **Lunch on Your Own**

20.1 Underwater and Maritime Acoustics - Advances in

Monday, 13:20 – 16:20, 5th Floor, Chicago F

Chairs: Joe Cuschieri, Allan Beaudry

13:40 **1381** **Extraction of Auditory Related Features for Marine Mammal Recognition**
Zeng Xiangyang; Wang Qiang; Lu Chenxiang

14:00 **1605** **A Novel Search Method of Variable Scale Relative Entropy for Non-Cooperative Transient Underwater Acoustic Pulse Signals**
Kun Wei; Shiliang Fang

14:20 **1865** **Understanding Radiated Underwater Noise Levels Measured at Different Sound Ranges**
Anton Homm; Stefan Schäl; Hans Hasenpflug

14:40 **2032** **Vibroacoustic Response of an Immersed Stiffened Multilayered Shell Excited by a Plane Wave**
Maxime Dana; Laurent Maxit; Julien Bernard

15:00 **Coffee Break**

15:20 **2323** **Marine Underwater Noise Control Design: Achieving Noise Goals with Lower Risk and Cost**
Jesse Spence; Raymond Fischer; Allan Beaudry

15:40 **1607** **Study on Method of Hull Longitudinal Strength using Coupling Hull Beam Model Subjected to Underwater Non-Contact Explosion**
Jiang Keda; Shi Dongyan

16:00 **1656** **Correction Method of Highly Non-Uniform Current Profile Acoustic Measurement Based on Doppler in Moving Media**
Zhaowen Sun; Shiliang Fang; Yongshou Yang

3.2 Aircraft Noise - Interior Noise

Monday, 16:20 – 17:20, 5th Floor, Chicago F

Chairs: Sebastian Ghinet, Sven Reimer

16:20 **2099** **Prediction of Sound Transmission in Aircraft over the Mid and High Frequency Range**
Gerard Borello

16:40 **1417** **Sound Quality of Aircraft Cabin for VIP and Business Jets**
Nurkan Turkdogru Gurun; Hemang Sheth

17:00 **2034** **Noise Reduction of a Vacuum-Assisted Toilet**
Michael Rose; Dagan Pielstick; Zach Jones; Kent Gee; Scott Thomson; Scott Sommerfeldt

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1.2 Acoustic Materials - Acoustic Metamaterials

Monday, 09:00 – 12:40, 5th Floor, Chicago G

Chairs: Sebastian Ghinet, James Manimala

09:00 **1701** **Bilayer Membrane-Type Metamaterials Transmission Loss Carry Different Masses**
Tuo Xing; Xian-Hui Li

09:20 **2229** **Acoustic Metasurface Harvester**
Huy Nguyen

09:40 **1368** **Anomalous Diffusion in Acoustic Phononic Crystals**
Salvatore Buonocore; Mihir Sen; Fabio Semperlotti

10:00 **1836** **Distorting an Impulse Wave with Phononic Metamaterials - a Scale Model Study**
Michelle Swearingen; Jason Dorvee; Donald Albert; Michael Muhlestein; Megan Kreiger; James O'Daniel

10:20 **1448** **Effective Medium Representation of Periodic Designs Based on a Semi-Analytical Approach**
Laetitia Roux; Christian Audoly; Anne-Christine Hladky; Nicole Kessissoglou

10:40 **Coffee Break**

11:00 **1851** **Study of Vibration Absorption Characteristics of Membrane-Type Resonators with Varying Membrane Configurations**
Cong Gao; Dunant Halim; Chris Rudd

11:20 **1704** **Experimental Analyses of Membrane-Type Acoustic Metamaterials with Tunable Properties by a Compact Magnetic-Iron**
Junjuan Zhao; Yueyue Wang

11:40 **2320** **Broadband Membrane-Type Acoustic Metamaterials with Polymorphic Anti-Resonance Modes and Experimental Verification**
Guojian Zhou; Jiu Hui Wu; Xiujie Tian; Jian Shen; Wei Huang; Keda Zhu

12:00 **2288** **Control of Sound Directivity Based on Metamaterials**
Xiaozhou Liu; Jiehui Liu

12:20 **2080** **Design and Demonstration of Acoustic Bends with Metamaterials**
Jun Yang; Han Jia; Wenjia Lu; Jun Yang

12:40 **Lunch on Your Own**

1.4 Acoustic Materials - Porous Materials Measurement and Modeling

Monday, 13:40 – 18:00, 5th Floor, Chicago G

Chairs: Olivier Robin, Jennifer Shaw

13:40 **1600** **Notes on the Sound Field above a Porous Material**
Raffaele Dragonetti; Marialuisa Napolitano; Rosario Romano

14:00 **2110** **Study on Loosely-Supported Technique for Controlling Elastic Behavior of Test Samples in an Impedance Tube Measurement**
Masateru Kimura; Toshikazu Satoh; Michiyuki Yamaguchi; Jason Kunio; Edward Green

14:20 **2010** **SLaTCoW (Spatial LAplace Transform for COmplex Wavenumber recovery) Method for Frequency Complex Wavenumber Dispersion Relation Recovery**
Alan Geslain; L. Schwan; J.P. Groby; V. Romero-Garcia; P. Leclaire; A. El-Hafidi

14:40 **2318** **Experimental Analysis of the Dispersion in the Measurement of the Absorption Coefficient with the Impedance Tube**
Bruno Neto; Israe Pereira; Sideto Futatsugi; Paulo Mareze; Eric Brandão; William Fonseca

15:00 **1762** **Experimental Modelling of High Transmission Loss Layered Materials via Transfer Matrix Method**
John Anton; Ed Green

15:20 **Coffee Break**

15:40 **1745** **A Spectral Method for Fast Broadband Insertion Loss Modeling of Curved Sound Packages: Correlation with Poroelastic Finite Elements**
Corentin Coguenanff; Arnaud Duval; Mickael Goret

16:00 **2112** **Comparison of Bulk Property Measurement Methods Using Impedance Tube**
Masateru Kimura; Jason Kunio; Edward Green

16:20 **1534** **A Self-Consistent Approach for the Acoustical Modeling of Vegetal Wools**
Clément Piegay; Philippe Glé; Emmanuel Gourdon; Etienne Gourlay

16:40 **2219** **Sound Absorption Predictions of Multiple Layer Porous Materials and Test Validations**
Zheng Yu

17:00 **1868** **Perforated Materials with Periodically Distributed Annular Cavities for Low Frequency Acoustic Absorption**
Thomas Dupont; Philippe Leclaire; Olga Umnova; Raymond Panneton

17:20 **1791** **Comparison with Acoustic Impedance Measurement Results of Cardioid Microphones and Other Probes**
Kazuma Hoshi; Toshiki Hanyu

17:40 **1775** **Sound-Absorbing Materials using of Rice Straws (Oblique Incident Sound-Absorption Coefficient of Oblique Arrangement of Hollow Cylindrical Biomass)**
Shuichi Sakamoto; Taisei Tsurumaki; Kohei Fujisawa; Koki Yamamiya

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22.1 Vibro-Acoustics - Advances in

Monday, 09:00 – 11:20, 5th Floor, Chicago H

Chairs: Li Cheng

09:00 **1395** **Experimental and Numerical Study on the Acoustic Mapping and Radiation Force Quantification of Focused Ultrasound Transducers**
Songmao Chen; Alessandro Sabato; Christopher Niezrecki; Peter Avitabile

09:20 **1354** **Solid-State Thermoacoustics**
Haitian Hao; Carlo Scalo; Mihir Sen; Fabio Semperlotti

09:40 **2105** **Stop Band Analytical Design for Flexural Waves in Periodic Continuously Corrugated Beam**
Adrien Pelat; Thomas Gallot; François Gautier

10:00 **Coffee Break**

10:20 **1459** **Multi-Mode Interactions in a Nonlinear Structural-Acoustic Cylindrical Waveguide**
Biswajit Bharat; Venkata Sonti

10:40 **1591** **Low and Medium Frequency Noise Reduction inside an Acoustic Cavity using De-Tuned Slit and Multi-Slit Resonators**
V S N Reddi Chintapalli; V V Gopal Rao Lokireddy

11:00 **1570** **Coupled Structural Acoustics of Constrained Semi-Infinite Plate under Line Harmonic Forcing**

Jaykumar Atulbhai Bhalodia; Abhijit Sarkar

22.2 Vibro-Acoustics - Acoustic Black Holes

Monday, 11:20 – 15:20, 5th Floor, Chicago H

Chairs: Steve Conlon

11:20 **1861** **Studies on Vibration Energy Harvesting Using a Cantilever Beam with a Modified Acoustic Black Hole Cavity**
Chenhui Zhao; MG Prasad

11:40 **1475** **Optimal Design and Position Of An Embedded One-Dimensional Acoustic Black Hole**
Cameron McCormick; Micah Shepherd

12:00 **1912** **Numerical Analysis of Wave Propagation in Functionally Graded 1-D Acoustic Black Hole via Viscoelastic Local Interaction Simulation Approach**
Wei Huang; Hui Zhang; Hongli Ji; Carlos Cesnik; Jinhao Qiu; Daniel Inman

12:20 **Lunch on Your Own**

14:00 **1844** **Vibroacoustic Properties of Plates with Tuned Acoustic Black Holes**
Yu Xiong; Edward Smith; Stephen Conlon

14:20 **1895** **Numerical Modelling of Additively Manufactured Acoustic Black Holes**
Sebastian Rothe; Hagen Watschke; Thomas Vietor; Sabine Christine Langer

14:40 **1403** **Sound Radiation of Plates with Embedded Circular Acoustic Black Hole Indentations**
Li Ma; Li Cheng

15:00 **2058** **The Use of Perfect Absorption in the Tunability of the Resonant Modes of an Acoustic Black Hole**
Julien Leng; Vicent Romero; Jean-Philippe Groby; Adrien Pelat; Ruben Pico; François Gautier

15:20 **Coffee Break**

22.3 Vibro-Acoustics - Application of Vibro-Acoustic Methods to Noise Control Treatment

Monday, 15:40 – 18:00, 5th Floor, Chicago H

Chairs: Olivier Robin, Jinghao Liu

15:40 **1890** **Investigation of Structure-Borne Noise in Plates Supported by Vibration Isolators through a Hybrid Deterministic / SEA Approach**
Simone Baro; Roberto Corradi

16:00 **2238** **Transmission Loss Prediction through a Curved Structure-Cavity System with Attached Sound Packages by means of a Hybrid Patch Transfer-Green Functions Approach**
Kamal Kesour; Noureddine Atalla

16:20 **2046** **Absorption Characteristics of Membrane-Embedded Acoustic Liners**
Alexander Svetgoff; James Manimala

16:40 **1870** **A Matrix-Free Model Order Reduction Scheme for Vibro-Acoustic Systems including Complex Noise Control Treatments**
Stijn Jonckheere; Elke Deckers; Wim Desmet

17:00 **1402** **Design Optimization of Multilayer Materials Based on the Acoustic Characteristic Indicators**
Jinxiang Pang; Xianfeng Wang

17:20 **1378** **Research on Vibration Control of Thin Plate Based on Prestressing**
Cheng Zhang; JIan-run Zhang; Xi Lu

17:40 **2091** **Acoustic Behaviour of New Rice Husk Composites**
Julieta Antonio; Antonio Tadeu; Beatriz Marques ; João Almeida

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2.1 Active Control of Sound and Vibration - Advances in

Monday, 09:00 – 12:00, 4th Floor, Clark

Chairs: Jing Lu, Yangfan Liu

09:00 **1739** **On the Frequency-Independence of Interior Radiation Modes using Coupled Modes Theory**
Christian Hesse; Hans Peter Monner

09:20 **1649** **Theory on the Use of Potential Energy Modes in Active Noise Control of a Small Region with Acoustic Sensors and Impedance Boundary Conditions**
Yangfan Liu; Jiawei Liu; J. Stuart Bolton

09:40 **1953** **Optimization of Exciter Arrangement to Improve Beamforming Performance of Multi-Actuator Panels with Low-Damping Loss Factor**
Onyu Jeon; Homin Ryu; Semyung Wang

10:00 **Coffee Break**

10:20 **2083** **Active Vibration Control System using Membrane Piezo-Electric Ceramics for Steel Staircases**
Hitoshi Matsushita

10:40 **2180** **Reducing Noise Leakage Problem of Open-Fit Hearing Aid using Active Noise Cancellation**
Chung Ying Ho; Kuo Kai Shyu; Cheng Yuan Chang; Sen M. Kuo

11:00 **2315** **An Investigation into the Nonlinear Vibration Response of a Beam: PZT Stack and Proof-Mass System**
Xishan Jiang; Jie Pan

11:20 **1425** **Ship Vibration and Noise Test Verification Based on Statistical Energy Analysis Method**
Xuhong Miao; Yuhui Li; Fuzhen Pang; Xueren Wang

11:40 **1427** **Establishing Error Sensing Strategy by using Pseudo-Uniform Structure Quantity for the Active Rib Stiffened Double-Panel Structure**
Xiyue Ma; Kean Chen; Jian Xu; Bing Zhou

12:00 **Lunch on Your Own**

2.3 Active Control of Sound and Vibration - Algorithms for Active Control and Speech Enhancement

Monday, 13:40 – 14:40, 4th Floor, Clark

Chairs: Jing Lu, Yangfan Liu

13:40 **1788** **Direction-of-Arrival Dependency of Active Noise Cancellation Headphones**
Stefan Liebich; Jan-Gerrit Richter; Johannes Fabry; Christopher Durand; Janina Fels; Peter Jax

14:00 **1976** **Reference Weighted Filtered-x LMS Algorithm for Active Control of Impulsive Noise**
Rushikesh Dhakad; Guo Long; Tao Feng; Teik Lim

14:20 **1603** **Kalman Filter Based Active Noise Control Algorithm with Simultaneous Transfer Function Modeling**
Kai Chen; Jing Lu

15.3 Railroad Noise - Noise and Vibration Mitigation Measures

Monday, 09:00 – 12:00, 5th Floor, Denver

Chairs: Scott Edwards, Herb Singleton

09:00 **2093** **Noise Control of a Diesel Locomotive For Indian Railways**
Amiya Mohanty; Shahab Fatima

09:20 **2115** **Predicting Light-Rail Groundborne Noise and Vibration from Tunnels**
Shannon McKenna; Christopher Layman

09:40 **1843** **Elastic Components for Reduction of Vibrations in Railway Superstructure**
Harald Steger; ANdreas Denk

10:00 **2309** **Life Cycle Assessment of Ground Borne Vibration Mitigation Strategies using Subgrade Stiffening, Soft-Filled Barriers and Open Trenches**
Sakdirat Kaewunruen; Panrawee Rungskulroch; Victor Martin

10:20 **2092** **Vibration Isolators Made of Expanded Cork Agglomerate**
Sara Dias; António Tadeu; Julieta António; Filipe Pedro; Catarina Serra

10:40 **Coffee Break**

11:00 **1684** **Analysis of Vibration Mitigation Effect of Steel Spring Floating Slab Track Soaked in Water**
Teng Li; Danqun Fang

11:20 **2311** **The Effect of Climate Change on Service Life and Cost Investigation of Rail Turnouts with Various Mitigation Methods**
Sakdirat Kaewunruen; Serdar Dindar

11:40 **1680** **Rail Roughness Monitoring in a Test Section using Tuned Rail Damper to Control Rail Corrugation Growth**
Hougui Zhang; Danqun Fang

12:00 **Lunch on Your Own**

15.4 Railroad Noise - High Speed Rail Noise and Vibration

Monday, 13:40 – 16:00, 5th Floor, Denver

Chairs: Shannon McKenna, Bin Zhang

13:40 **1853** **Vibration Prediction for High Speed Trains Utilising the Pipe in Pipe (PiP) Model to Determine Ground-Borne Noise Levels in the Vicinity of Different Tunnel Types**
Steve Summers; Graham Parry; Mike Ledbetter; Rebecca Edwards; Ben Mills

14:00 **1712** **Railway Noise above 10 kHz Generated on a Curved Section of High-Speed Railway Line**

Tsugutoshi Kawaguchi; Takeshi Sueki; Toshiki Kitagawa

14:20 **1711** **Full-Size Model of Shinkansen and Sound Proofing Walls Tested Noise Decreasing Effect of Developed Noise Absorbing Material**
Masao Myouken

14:40 **1664** **Characterization of Surface Pressure Fluctuations of High-Speed Train Running in Open-Field using Wavenumber-Frequency Analysis**
Songjune Lee; Cheolung Cheong; Jaehwan Kim; Byung-hee Kim

15:00 **1587** **Auditory Evaluation of High-Frequency Sounds Radiated from the Japanese High Speed Railways**
Masaaki Hiroe; Tetsuya Ozaki; Mari Ueda

15:20 **2200** **Study on Aerodynamic Load Characteristic of Noise Barrier for High-speed Railway**
Gang Zou; Fei Dong; Junchuan NIu; Fusheng Sui; Guofeng Bai

15:40 **1343** **Schemes of Data Visualization for Ground Vibration Prediction Induced by Trains**
Yitjin Chen; Chi-Jane Chen; Chi-Jim Chen

16:00 **Coffee Break**

16:20 **1380** **Assessing Risk in Rail Transit Ground-Borne Noise and Vibration Predictions**
Gary Glickman

16:40 **1490** **Characteristics of Interior Noise In Sky-Rail And Noise Control**
Yaxuan Sun; Yongji Zhao

17:00 **1686** **The Characteristics of Noise Due to Tramway Passing through Small Radius Section**
Deyun Ding; Danqun Fang

11.2 Industrial Noise - Mufflers and Silencers

Monday, 09:00 – 15:00, 5th Floor, Los Angeles

Chairs: Mats Abom, Tamer Elnady

09:00 **1702** **Optimal Design of a Muffler for Reliable Noise Attenuation in Case of Uncertainty of Noise Source**
Jong Kyeom Lee; Jin Woo Lee

09:20 **1328** **Analysis of Baffle Leakage in a High Attenuation Exhaust Muffler**
Jean-Michel Coulon; Noureddine Atalla

09:40 **1480** **Modeling Acoustic Resonators with Higher-Order Equivalent Circuits**
Caleb Goates; Scott D. Sommerfeldt; David C. Copley

10:00 **1699** **Experimental Analysis of Whistle Noise in a Particle Agglomeration Pipe**
Zhe Zhang; Heiki Tiikoja; Mats Åbom; Hans Bodén

10:20 **1612** **Acoustic Analysis of Extended Inlet / Extended Outlet Concentric Tube Resonator using Green's Function**
Veerababu Dharanalakota; Venkatesham Balide

10:40 **Coffee Break**

11:00 **1579** **Experimental Study on the Performance of the Bladder Type Hydraulic Muffler**

Zhuang Wang

11:20 **1290** **Reciprocating Engine Exhaust Dynamics**
Elden Ray

11:40 **1812** **Technological Advancements of Syntactic Foam Liners for use in Hydraulic Noise Suppression**
Nathaniel Pedigo; Kenneth A.

12:00 **Lunch on Your Own**

13:40 **2107** **Source Flow Ripple and Source Impedance Measurement for Different Hydraulic Pumps**
Jinghao Liu; Thomas Butts; Sanghoon Suh

14:00 **1916** **Muffler Shape Optimization to Improve Transmission Loss for Narrow-Band Excitations**
James Bender; Wenlong Yang; Sonya Thorpe; Alexis Castel; Ricardo Alvarez

14:20 **1666** **Optimal Partition Layout of a Muffler for Thermal Energy Harvesting and Noise Attenuation**
Kee Seung Oh; Jin Woo Lee

14:40 **1558** **Study on The Influence of Extended Inlet with Acoustic Materials on Low Frequency Noise Control**
Xinyu Zhang; Zuowei Wang; Xiaochen Zhao

15:00 **Coffee Break**

11.4 Industrial Noise – Simulation

Monday, 15:20 – 17:20, 5th Floor, Los Angeles

Chairs: David Copley, Xin Hua

15:20 **1292** **A First Generation Earthmoving Machine Sound Simulator and its Potential Use in Product Sound Development**
David Copley

15:40 **1405** **Sound Field Calculations of a Diesel Generator with Enclosure by Finite Element Analysis**
Ersen Arslan; Mehmet Çalışkan; Caglar Uyulan

16:00 **1301** **Application of Blind Source Separation in Industrial Noise Prediction and Control**
Wei Yang; Tiao Joo Kwee; Cheong Siong Chin; Wai Lok Woo; Sajin Saju

16:20 **2317** **Simulationof Transformer Noise Controlling Based on an Equivalent Sound Source Model**
Xuan Cai; Xuelei Zhan; Na Wei; Yong Cai; Dakun Li

16:40 **1640** **Engineering Way to Improve Accuracy of Noise Prediction for Industrial Plants by Field Noise Measurement Outcome**
Takahiro Hida

17:00 **1280** **Vibration Assessment on Plant Blower Structure**
Zamri Mohamed; CK Eddy Nizwan CK Hussin; Mohd Razali Hanipah

Technical Sessions

Tuesday, August 28, 2018

16.1 Sound Quality and Product Noise - Product Sound Quality

Tuesday, 09:00 – 14:20, 4th Floor, Addison

Chairs: Ercan Altinsoy, Masayuki Takada

09:00 **1828** **Sound Label for Household Appliances**
M. Ercan Altinsoy; Serkan Atamer

09:20 **1960** **Psychoacoustic Tonality Analysis**
Julian Becker; Roland Sottek

09:40 **1777** **Subjective Evaluation for Harshness Sounds**
Risa Takahashi; Masayuki Konishi; Koji Ishida

10:00 **2236** **Methods of Acoustical End-of-line Testing for Sound Quality Assurance during Vehicle Manufacturing**
Roland Salzer; David Mackenzie; Christian Hubert; Gunther Papsdorf

10:20 **Coffee Break**

10:40 **1464** **Sound Quality Evaluation of Noise Emitted from Brush Cutters**
Masayuki Takada; Kohei Iida; Shoki Tsunekawa; Shin-Ichiro Iwamiya

11:00 **1438** **Sound Quality Evaluation of Residential HVAC&R Equipment**
Weonchan Sung; Patricia Davies; J. Stuart Bolton

11:20 **1307** **Subjective and Objective Assessment of Loudness For Mobile Phone Applications**
Wookeun Song; Lars Birger Nielsen; Tore Stegenborg-Andersen; Idir Edjekouane; Cyril Plapous; Vincent Barriac

11:40 **Lunch on Your Own**

13:20 **1525** **Imagine, Design, and Experience Interior Active Sounds For EV: A Comprehensive Process**
Peyret Paul; Patrick Boussard; Clément Dendievel; Stéphane Molla; Antoine Minard

13:40 **2277** **Intensity Perception for Complex Vertical Whole-Body Vibration**
Anna Schwendicke; Shuye Cheng; Xudong Yu; M. Ercan Altinsoy

14:00 **1708** **The Effect of "Twinkle Twinkle Little Star" on Short-Term Memory**
Munhum Park; Pavarit Chuprasert; Achcharaphan Kloemwilai; Napat Fahkrajang; Pruch Sawetratanastien

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16.2 Sound Quality and Product Noise - Consumer Product Noise

Tuesday, 14:20 – 17:40, 4th Floor, Addison

Chairs: Ercan Altinsoy, David Nelson

14:20 **1624** **Between Engineering and Hearing Research: Auditory Models in Product Development**
Florian Völk

14:40 **1313** **Perceived Effectiveness of The Rumbler Emergency Siren System**
Frank Angione; Colin Novak; Ashley Lehman; Ben Merwin; Tom Pagliarella; Chris Imeson; Nikolina Samardzic; Peter D'Angela; Helen Ule

15:00 **1355** **A New Psychoacoustic Method for Reliable Measurement of Tonalities According to Perception**
Wade Bray

15:20 **Coffee Break**

15:40 **1928** **Assessing LED Bulb Noise**
David Nelson; Jeff Schmitt

16:00 **1629** **Compliance of Chain-Saw Noise Information with the Machinery Directive 2006/42/EC**
Paul Brereton; Jacqueline Patel

16:20 **2120** **Buy Quiet: Findings of I-INCE TSG-10**
Willem Beltman; Robert Hellweg; Jean Jacques; Patrick Kurtz; Jean Tourret

16:40 **1470** **Simplified Determination of the Environmental Correction for Noise Emission Measurements**
Fabian Heisterkamp; Ilka Arendt

17:00 **1414** **Parameter Values for a Signal Processing Methodology with Constant Maximum Sample Kurtosis across Fractional-Octave-Bands**
Edward Zechmann

17:20 **1377** **Dynamic Modeling and Double-Side Optimization of the Orbital Sander Vibration**
Lingjian Shi; Beibei Sun

19.4 Transportation Noise - Barriers

Tuesday, 09:00 – 11:40, 4th Floor, Armitage

Chairs: Kohei Yamamoto, Jean-Pierre Clairbois

09:00 **2040** **Changes in Sound Due to Noise Barrier Reflections**
Judy Rochat

09:20 **1408** **Acoustic Effectivity of Old Noise Barriers**
Joern Huebelt; Christian Schulze; Paul Lindner; Michael Chudalla; Wolfram Bartolomaeus

09:40 **1410** **Calculating Traffic Noise Reduction at Long Distance using Diffracting Elements**
Eef Brouns; Frits Van der Eerden; Arno Eisses; Anneke Kruyen; WillemJan Van Vliet

10:00 **1683** **Heavy Vehicle Noise Control by Parallel Barrier**
Zhibo Wang; Yat Sze Choy; Kai Ming Li

10:20 **Coffee Break**

10:40 **2250** **Practical Use of an Additional Noise Barrier for High Speed Train**
Daigo Sato; Masakazu Kiyama; Takefumi Kozasa; Akira Omoto

11:00 **1900** **Traffic Noise Reduction as an Additional Role of Gabion Fences**
Krystian Woźniak; Marian Tracz

11:20 **1939** **A New Homogeneous Porous Sound Absorptive Barrier Slab Made of Sand Rock**
Guo Jing; Yan Xiang

11:40 **Lunch on Your Own**

24.1 Bill Lang Remembrance Session

Tuesday, 13:40 – 16:20, 4th Floor, Armitage

Chair: Robert Bernhard

13:40 **Bill Lang - family and personal perspectives**
Bob Lang

14:00 **Bill Lang's seminal contributions to INCE-USA, International INCE, the INCE Foundation, and IBM**
George Maling

14:20 **Bill Lang's contributions to IBM Acoustics and IBM in general**
Matt Nobile; Dave Yeager

14:40 **Bill Lang's contributions at the National Academy of Engineering**
Dan Mote; Proctor Reid

15:00 **Technology for a Quieter America and Follow-on Workshops**
Eric Wood

15:20 **Bill Lang and Global Noise Policy**
Tor Kihlman

15:40 **Bill Lang's contribution to noise control engineering in Japan**
Hideki Tachibana

16:00 **Bill Lang and I-INCE**
Robert Bernhard

16:20 **Bill Lang Reception**

9.2 Flow Induced Noise and Vibration - Computational Methods

Tuesday, 09:00 – 15:20, 4th Floor, Belmont

Chairs: Randolph Leung, Carsten Spehr

09:00 **2134** **Acoustically Induced Vibration Questionnaire**
Robert Bruce; Adam Young; Arno Bommer

09:20 **1592** **The Application of Leading-Edge Serrations to Reduce Underwater Noise from SUBOFF Model**
Yalin Li; Yongwei Liu

09:40 **2067** **Duct Aeroacoustic Control by Multiple Flexible Panels**
Harris K. H. Fan; Cheng Shen; Randolph C. K. Leung

10:00 **1295** **Analysis and Optimization of Air Duct Noise of Frost-Free Refrigerator Based on Experiment and CFD Method**
Du Xiaofei; Chengxi Li

10:20 **Coffee Break**

10:40 **1483** **Noise Prediction of Axial Fan Duct using a Lattice Boltzmann Approach and Acoustic FEM**
Kentaro Hayashi; Toshifumi Kudo

11:00 **1772** **Broadband Noise Prediction of Stochastic Sources Based on the Linearized Euler Equations**
Cesar Legendre; Benjamin DeBrye; Yves Detandt; Alexis Talbot; Athanasios Poulos; Maxime Raskin

11:20 **2011** **Methodology for Predicting Flow Induced Noise in Axial Fans through Aero Vibro-Acoustics (AVA)**
Prashant Gawade; Sushil Paradhe; Vishal Patil; Marvin Mealman

11:40 **1384** **Time Domain Boundary Element Method for the Leading Edge Noise subjected to Linear Vorticity**
Sparsh Sharma; Thomas Geyer; Ennes Sarradj

12:00 **1742** **Analysis of the Physical Behavior of Refrigerant-Flow Induced Noise in an Automotive HVAC System by a Coupled Simulation**
Atsushi Itoh

12:20 **Lunch on Your Own**

14:00 **2261** **CFD Based Lock-In Modeling of Cavity-Pipe Line Systems**
Ted Bagwell; Kristin Cody

14:20 **2321** **Review of Causes and Mitigation of Cavity Noise in Machinery and Other Mechanisms**
Frank Kushner

14:40 **1373** **FSI Vibration Analysis Method of Complex Fluid-Filled Piping Systems**
Shuaijun Li; Yong Chen; Chunguo Wang

15:00 **2102** **Predicting Noise from Mower Deck using a Computational Aeroacoustics Model**
Hany Nakhla; Christopher Waltenberry; Jose Magalhaes; Sanghoon Suh

15:20 **Coffee Break**

Rayleigh Lecture

Tuesday, 16:00 – 18:00, 4th Floor, Belmont

Chair: Sue Sung

16:00 **Computational Vibro-Acoustics in Low and Medium Frequency Bands**
Roger Ohayon

2.2 Active Control of Sound and Vibration - Application

Tuesday, 09:00 – 15:20, 5th Floor, Chicago A

Chairs: Jiancheng Tao, Haishan Zhou and Delf Sachou

09:00 **1557** **Truncated Singular Value Decomposition Method for Mitigating Unwanted Enhancement in Active Noise Control Systems**
Xuchen Wang; Yangfan Liu; J. Stuart Bolton

09:20 **2042** **Multi-Channel Adaptive Feedforward Systems for Multi-Input Multi-Output Active Control of Broadband Road Noise**
Guo Long; Tao Feng; Rushikesh Dhakad; Teik Lim

09:40 **1800** **Active Vibration Control System for Reducing Gear Whine Noise**
Jan Troge; Welf-Guntram Drossel; Eric Hensel; Tom Georgi

10:00 **2076** **A Review of the Applications of Hybrid Active / Passive Noise Control Systems in Ducts**
Jiancheng Tao; Xiaojun Qiu; Haishan Zou

10:20 **Coffee Break**

10:40 **2190** **An Improved Active-Passive Hybrid Muffler**
Hongling Sun; Qiyan Ke; Han Wang; Ming Wu; Jun Yang

11:00 **1869** **Experimental Results of the Effect of Increased Filter Length and Sample Rate of a Feedback Active Noise Control System with the FxLMS-Algorithm implemented in VHDL**
Jonas Hanselka; Alexander Klemd; Delf Sachau; Bernd Klauer

11:20 **1866** **Simulative Study on the Effect of the Increase of the Sample Rate of a Feedback Active Noise Control System**
Max Lorenzen; Jonas Hanselka; Delf Sachau

11:40 **2246** **Controlling Sound Radiation through Openings with the Active Noise Control System at the Edge**
Shuping Wang; Jiancheng Tao; Xiaojun Qiu; Jie Pan

12:00 **2204** **Experimental Study on Nonuniform Hartmann Resonators**
Sonu Thomas; Srinivasan K

12:20 **Lunch on Your Own**

13:40 **2158** **Taking Control of Your Acoustical Environment - a Look at the Current State of Personal Noise Control Technology**
Jia Hao Chuah

14:00 **2287** **Window Active Noise Control System with Virtual Sensing Technique**
Rina Hasegawa; Dongyuan Shi; Yoshinobu Kajikawa; Woon-Seng Gan

14:20 **1661** **Performance Analysis of Active Control of Micro-Vibration Induced by Spacecraft Reaction Wheel**
Shi-Hwan Oh

14:40 **1993** **A400M Fuselage Controlled by Optimized Set of Tuned Vibration Absorbers**
Delf Sachau; Christian Koehne

15:00 **1391** **Using Frequency Dependent Causality Analysis and Automated Tuning with Broadband ANC Systems to Optimize the Performance of the 3D Sound Field in a Passenger Vehicle**
Jonathan Christian

15:20 **Coffee Break**

5.11 Building and Architectural Acoustics - Predictions and Prediction Methods

Tuesday, 15:40 – 17:40, 5th Floor, Chicago A

Chairs: Carolina Monteiro, John Davy and Berndt Zeitler

15:40 **1415** **A Vibrations Approach to Determining Batch-To-Batch Changes in Poured Gypsum Used in Flooring Systems**
Sunit Girdhar; Andrew Barnard

16:00 **1796** **Optimization of Sound Absorbing Ceilings**
Emma Arvidsson; Erling Nilsson; Delphine Bard Hagberg

16:20 **1383** **Real-Time Auralization of Sound Insulation**
Michael Vorlaender; Imran Muhammad

16:40 **1896** **A Model to Predict the Acoustic Satisfaction in Distracting Background Speech**
Tobias Renz; Philip Leistner; Andreas Liebl

17:00 **2017** **An Efficient and Accurate Sound Insulation Prediction Model for Finite Double-Leaf Walls with a Common Studded Frame**
Edwin Reynders; Jan Van den Wyngaert; Mattias Schevenels

17:20 **1339** **Diffracted Edge Wave Prediction of Finite, Rectangular Rigid Plates using the Physical Theory of Diffraction**
Ning Xiang; Aleksandra Rozynova

12.3 Measurement Methods - Signal Processing

Tuesday, 09:00 – 15:40, 5th Floor, Chicago B

Chairs: Andrew Barnard, Jing Lu

09:00 **1513** **Multiple Sound Images Reproduction with Parametric Array Loudspeakers and Indirect Electrodynamic Loudspeakers**
Yoshinori Ogami; Takahiro Fukumori; Masato Nakayama; Takanobu Nishiura

09:20 **1560** **Discomfort Reduction Based on Time-Frequency Auditory-Masking for Railway Brake Sound**
Misaki Otsuka; Sayaka Okayasu; Takahiro Fukumori; Masato Nakayama; Takanobu Nishiura

09:40 **2096** **Environmental Sound Monaural Source Separation with Clustered Non-Negative Matrix Factorization**
Charlotte Ellison; Matthew Blevins

10:00 **1889** **Line Spectra Enhancement Technique Based on Auto-Adaptive Window Length**
ChuanQi Zhu; ShiLiang Fang

10:20 **Coffee Break**

10:40 **1516** **HRTF Personalization Based on Pinna Shape Estimation by Standardized Scanning with Handy 3D Scanner**
Zhuan Zuo; Takahiro Fukumori; Masato Nakayama; Takanobu Nishiura

11:00 **1562** **Comfortable Sound Design with Chord-Forming of Musical Instrument Sound for Dental Treatment Sound**
Yoshitaka Ohshio; Takahiro Fukumori; Masato Nakayama; Takanobu Nishiura; Yoichi Yamashita

11:20 **1830** **Delamination Detection in Composite Laminates using a Vibration-Based Chaotic Oscillator Method**
Xuan Li; Dunant Halim; Xiaoling Liu; Chris Rudd

11:40 **1593** **Impulsive Noise Reduction in Speech Acquisition Based on Throat Vibration Measurement with Laser Microphone**
Hiroki Shindo; Takahiro Fukumori; Masato Nakayama; Takanobu Nishiura

12:00 **1398** **Object Identification Based on the Perturbation Analysis of the Sound Field in The Room Environment**
Haitao Wang; Yakun Wang; Jinfu Wang; He Du; Ruyue Zheng; Xiangyang Zeng

12:20 **Lunch on Your Own**

13:40 **1594** **Wearable Personal Audio-Spot Design Based on the Collaboration of Bone Conduction Headphone and**

Parametric Loudspeakers
Toshihiro Fujii; Takahiro Fukumori; Masato Nakayama; Takanobu Nishiura

14:00 **1357** **A Paradigm of Noise Interference in a Wave**
Himanshu Dehra

14:20 **1595** **A Study on Audible Low-Frequency Sound Emphasis Based on Multiplexed Double Sideband Modulation in Parametric Loudspeaker**
Yusei Nakano; Takahiro Fukumori; Masato Nakayama; Takanobu Nishiura

14:40 **1596** **Spectral Peak Noise Reduction with Frequency Modulated Carrier Wave for Parametric Loudspeaker**
Kairi Mori; Takahiro Fukumori; Masato Nakayama; Takanobu Nishiura

15:00 **1342** **Termites use Vibrations to Eavesdrop on Predatory Ants**
Joseph Lai; Sebastian Oberst; Theodore Evans

15:20 **1987** **Estimation of an Uncertain Source Power from Monitors at Multiple Distant Locations**
D. Keith Wilson; Chris Pettit; Carl Hart; Daniel Breton; Vladimir Ostashev

15:40 **Coffee Break**

5.5 Building and Architectural Acoustics - Case Studies

Tuesday, 16:00 – 17:20, 5th Floor, Chicago B

Chairs: Erik Miller-Klein, Paul Bauch and Marcos Holtz

16:00 **1906** **An Open Office Plan Case Study: Demountable Glass Partitions and Speech Privacy**
Corey Taylor; Kevin Herreman

16:20 **1780** **Polyurethane Foam for Reduction of Impact Noise and Vibration in Fitness Floors**
Jessica Scarlett; Brad Dimock

16:40 **2139** **New Urban Restaurant in Historic Hotel Separated by High-Transmission-Loss, Spring-Suspended Ceiling**
Jim Borzym

17:00 **2175** **Case Studies of HVAC Noise Control with Challenging Design Constraints**
Adam Buck; Gina Jarta

17.6 Soundscape and Noise Management - Apps, Social Media, and Virtual Reality as Soundscape Evaluation Tools

Tuesday, 09:00 – 11:20, 5th Floor, Chicago C

Chairs: Antonella Radicchi, Andy Chung

09:00 **1541** **Mapping Tranquility - A Case Study Of The Central Park Soundscape, New York City**
Eoin King; Elizabeth Caltagirone; Ben Steers; Paul Slaboch

09:20 **1860** **From Crowdsourced Data to Open Source Planning: the Implementation of the Hush City App in Berlin**
Antonella Radicchi

09:40 **1810** **Realism and Immersion in the Reproduction of Audio-Visual Recordings for Urban Soundscape Evaluation**
Kang Sun; Dick Botteldooren; Bert De Coensel

10:00 **Coffee Break**

10:20 **1763** **Integrating Artificial Intelligence with Virtual Reality for Soundscape Appraisal**
Andy Chung; Wai Ming To; Iris Vong

10:40 **1319** **Using Sound Level Meter Apps to Raise Noise Pollution Awareness - New York City Case Study**
Greg Scott F.

11:00 **1633** **A Community-Driven Plug-And-Sense Sensor Network for Soundscapes and Environmental Noise**
Tae Hong Park

12:00 **Lunch on Your Own**

17.5 Soundscape and Noise Management - Indoor Soundscape

Tuesday, 13:40 – 16:40, 5th Floor, Chicago C

Chairs: Semiha Yilmazer, Keely Siebein

13:40 **2146** **Taipei MRT cabin soundscape - route between Shandao Temple and Taipei Main Station**
Julie C Chen; Christain Christain; Yu-Tein Yen; Anastasia Mimosa; Elisabeth Kathryn; Lucky Tsaih

14:00 **2122** **Soundscape of Transportation: Aircraft**
Marylin Roa; Gary W. Siebein; Hyun G. Paek; Gary Siebein Jr.

14:20 **2157** **A Study of Diffusivity in Concert Halls Using Large Scale Acoustic Wave-Based Modeling and Simulation**
Hassan Azad; Roozbeh Ketabi; Gary Siebein

14:40 **2156** **The Soundscape of Theaters**
Keely Siebein; Gary Siebein

15:00 **Coffee Break**

15:20 **2052** **Strategies for Tunable Indoor Soundscapes**
Ganapathy Mahalingam

15:40 **2170** **Study of Soundscape Design Incorporating Sound Instrument into Mini-Plant Factory**
Taiko Shono; Hidemaro Shimoda; Na Lu; Syuichi Obayashi; Jiaxun Hu

16:00 **1958** **Effect of Sound Absorption on Children's Concentration to Listening to Teacher's Speech in a Child Daycare Room**
Keiji Kawai; Momoko Otaku

16:20 **1390** **A Qualitative Approach to Investigate Indoor Soundscape of the Built Environment**
Semiha Yilmazer; Volkan Acun

20.2 Underwater and Maritime Acoustics - Ships and Offshore Noise and Vibration

Tuesday, 09:00 – 12:20, 5th Floor, Chicago D

Chairs: Yegao Qu, Bernt Mikal Larsen

09:00 **1755** **Emitted Noise in Harbors - Effect of Shore Power**
Bernt Mikal Larsen

09:20 **2001** **Evaluating Biological Effects of Dredging-Induced Underwater Sounds**
Andrew McQueen; Burton Suedel; Justin Wilkens; Morris Fields

09:40 **1754** **COMPILE II - A Benchmark of Pile Driving Noise Models against Offshore Measurements**
Stephan Lippert; Marten Nijhof; Tristan Lippert; Otto von Estorff

10:00 **Coffee Break**

10:20 **1751** **Sound Radiation Characteristics of Underwater Cylindrical Shells with Structural Complexities**
Yao Sun

10:40 **1652** **Analysis of Acoustic Radiation Characteristics of an Infinitely Long Half-Filled Cylindrical Shell**
Shuai Zhang; Tianyun Li; Xiang Zhu

11:00 **1455** **Unsteady Flow of an Impulsively Started Circular Cylinder with Two Symmetrical Strips**
Jialiang Zhou; Guoyong Jin

11:20 **2292** **The Vibration Test and Analysis of the Star Air Compressor**
Hu Hengbin; Zhang Linke; Tan You

11:40 **1608** **Free Vibration Analysis of Rectangular Thin Plate with Multiple Openings under General Boundary Conditions**
Rui Nie; Tianyun Li; Xiang Zhu; Wenjie Guo; Jun Zhang

12:00 **2135** **A Review of Offshore Noise Levels**
Arno Bommer; Adam Young; Robert Bruce

12:20 **Lunch on Your Own**

5.7 Building and Architectural Acoustics - Facade and Envelope Sound Isolation

Tuesday, 13:40 – 16:40, 5th Floor, Chicago D

Chairs: Jeanette Hesedahl, Melinda Miller

13:40 **2053** **The Use of Scatterer Arrays to Improve the Sound Transmission Loss Across Plenum Windows**
SK Tang

14:00 **1584** **Active Noise Control Strategy for Road Traffic Noise Energy Penetrating Windows in High-Rise Buildings using a Vibration Active Control Device**
Jiping Zhang; Jie Jiang; Peng Chen; Zheming Wang

14:20 **1493** **Acoustical Effects of Modern Building Envelope Advancements: You Can Hear the Difference!**
Jeffrey Fullerton; Jennifer Keegan; Thomas Hackett

14:40 **1308** **Noise Reduction and Air Behaviors in Ventilated Single-Glazed Façade with Glass Fiber-Based Shading Louvers and Compact Silencers**
Jeehwan Lee

15:00 **Coffee Break**

15:20 **2247** **Simulation of Acoustic Insulation of Facades Based on Existing Thermal Regulation in Chile**
Jaime Delannoy; Leonardo Meza; Antonio Marzzano

15:40 **1789** **The Effects of Acoustic Treatment on Plenum Windows in Reducing Outdoor Noise in Residential Buildings**
Tony Cheng; Louisa LY Cheung; David BK Yeung

16:00 **1725** **Comparison of Predicted Sound Transmission Loss through an Opening by using Finite Element and Ray-Tracing Methods**
Won-Gil Ji; Suk-Min Kwon; Hong-Seok Yang

16:20 **1971** **Noise Mitigation using Facade Design on Indonesian Hospital: Dr. Soetomo General Hospital Case Study**
Ainun Nadiroh; Dhany Arifianto; Nyilo Purnami

5.3 Building and Architectural Acoustics - HVAC Noise Control Methods and Standards

Tuesday, 10:40 – 12:20, 5th Floor, Chicago E

Chairs: Jeff Fullerton, Jerry Lilly

09:00 **2161** **Silencer SPICE and All That's Nice**
Karl Peterman

09:20 **1862** **Centrifugal Chiller Noise Sources and Mitigation**
Patrick Marks; R. Troy Taylor; Dale Unger

09:40 **2012** **Defining the Line of Practicality: an Investigation into the Impacts of Detailed Source Modeling and Preliminary Site Investigation when Specifying Mechanical Noise Control Measures**
Matthew Downey

10:00 **1385** **Predicting Sound Levels From Mechanical Equipment Rooms**
Felicia Doggett

10:20 **Coffee Break**

10:40 **2025** **Acoustical Performance of Foil-Faced Fiberglass Insulation Board**
Jerry Lilly; Francis Babineau

11:00 **1874** **Qualification Procedures for Reverberation Rooms**
Paul Bauch

11:20 **1968** **Quieting Cryptocurrency Exhaust Fans**
Sean Connolly

11:40 **2129** **Recent Experience with Cannabis Production Facility Noise**
Andrew Carballeira; Kristen Murphy

12:00 **1943** **Commercialization of the Carbon Nanotube Thermophone for HVAC Active Noise Control Applications**
Steven Senczyszyn; Andrew Barnard

12:20 **Lunch on Your Own**

3.4 Aircraft Noise - UAV Noise

Tuesday, 13:40 – 16:00, 5th Floor, Chicago E

Chairs: Ran Cabell, Kevin Herreman

13:40 **1364** **Acoustic Wind Tunnel Measurements of a Quadcopter in Hover and Forward Flight Conditions**

Nikolas Zawodny; Nicole Pettingill

14:00 **1314** **Aeroacoustic Emissions from Quadcopter Unmanned Aircraft Systems as Quadrupoles**
Frank Mobley

14:20 **2310** **Noise Level Prediction of a Small UAV Using Panel Contribution Analysis**
Gong Cheng; David Herrin

14:40 **Coffee Break**

15:00 **1526** **Comparative Acoustic Examination of UAV Propellers**
Konrad Oeckel; Jan Heimann; Michael Kerscher; Sven Angermann; Gunnar Heilmann; Wolfgang Rüther-Kindel

15:20 **1855** **UAS Noise Certification**
David Senzig; Mehmet Marsan

15:40 **1362** **Initial Developments Toward an Active Noise Control System for Small Unmanned Aerial Systems**
Noah Schiller; Nikolas Zawodny

21.1 Vehicle Noise, Vibration, and Harshness - Advances in

Tuesday, 09:00 – 10:20, 5th Floor, Chicago F

Chair: Ming-Hung Lu

09:00 **1536** **Design of a Test System for Quantitative Rating of Squeak Propensity of Material Pairs**
Gil Jun Lee; Jay Kim

09:20 **1531** **Noise Source Separation in Electric Vehicles Using Operational Transfer Path Analysis**
Ming-Hung Lu; Ming Une Jen; Dennis de Klerk

09:40 **1588** **A Case Study on the Discomfort Caused by Vertical Vibration in a Micro Commercial Car**
Yu Huang; Dou Li

10:00 **1727** **A Study on Possible Causes of Squeak Noises in the Hand-Grab Bar Assembly of a Vehicle**
Gil Jun Lee; Sung Uk Choi; Jay Kim

10:20 **Coffee Break**

21.2 Vehicle Noise, Vibration, and Harshness - Body Structure NVH

Tuesday, 10:40 – 12:20, 5th Floor, Chicago F

Chairs: Gordon Ebbitt, Steve Sorenson

10:40 **1959** **A Study on how Small Changes to Vehicle Panel Boundary Conditions Vary the Overall System Response**
Amy Dowsett; Dan O'Boy; Stephen Walsh; Steve Fisher

11:00 **2045** **Lightweight, Flexible Damping Treatment using a Kinetic Spacer**
Seungkyu Lee; Taewook Yoo; Ronald Gerdes; Thomas Hanschen; Georg Eichhorn

11:20 **1741** **A Methodology for Improving Vehicle Suspension's Vibro-Acoustic Performance for Road Induced Noise using FBS Method**
Jun Gu Kim; Yeon June Kang; David P. Song; Mun Hwan Cho; Kang Duck Ih

11:40 **1671** **Fundamental Study of Time Domain Contribution Separation Technique for Principal Component Mode Affecting the Ride Comfort of a Vehicle**
Takuya Kajiyama; Hiroki Taguti; Junji Yoshida

12:00 **1670** **Handle Vibration Reduction of Lawnmower by Applying Slightly Unbalanced Blade**
Shimpei Ohno; Yusuke Yamaguchi; Junji Yoshida

12:20 **Lunch on Your Own**

21.3 Vehicle Noise, Vibration, and Harshness - Powertrain NVH

Tuesday, 13:40 – 15:20, 5th Floor, Chicago F

Chairs: Pranab Saha, Gordon Ebbitt

13:40 **1694** **Development of an Improved Simulation Method for Determining the Vibrational Behaviour of the Electric Motor in Hybrid-Electric Automotive Applications**
Ayden Shahfir

14:00 **1743** **Experimental Modal Analysis and Numerical Model Development of Diesel Engine Block**
Deepak Ghaisas; Sachin Pawar; Devendra Mandke; Sanghoon Suh

14:20 **1400** **Prediction of In-Vehicle Powertrain Rigid Body Modes**
Ramakanth Maddali

14:40 **2154** **Computational Analysis of DI Pump Ticking Noise Excited By Solenoid Valve Impact**
Qifan He; Nikhil Seera; Akira Inoue

15:00 **1305** **Interaction of Gear Tooth Friction and Misalignment Effect on the Vibro-Acoustics of Spiral Bevel Gears**
Srikumar C Gopalakrishnan; Yawen Wang; Teik C. Lim

15:20 **Coffee Break**

21.4 Vehicle Noise, Vibration, and Harshness - Aerodynamic and Flow Induced Vehicle Noise

Tuesday, 15:40 – 16:40, 5th Floor, Chicago F

Chairs: Xin Hua, Pranab Saha

15:40 **1729** **A Continuous Adjoint Framework for Vehicle Aeroacoustic Optimization**
Christos Kapellos; Michael Hartmann

16:00 **2098** **Virtual Test Platform of Automotive Aeroacoustic Performances for Earlier Development Phase**
Munhwan Cho; Kang Duck Ih

16:20 **2015** **A New Approach to End of Line Vehicle Audit - Turning Subjective Evaluations to Objective Rankings using a New Signal Processing Algorithm**
Gary Newton; Kiran Kumar Kandula; Eric Frank; Brian Thom; Mark Sturgill

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1.3 Acoustic Materials - Microperforated Panels

Tuesday, 09:20 – 15:00, 5th Floor, Chicago G

Chairs: Mats Abom, Yat Sze Choy

09:20 **1432** **Sound Attenuation in a Flow Duct Periodically Loaded with Micro-Perforated Patches Backed by Helmholtz Resonators**
Teresa Bravo; Cedric Maury

09:40 **1902** **Dimensional Analysis in the Air Flow Resistivity Measurements of Perforated Plates**
Katarzyna Baruch; Aleksandra Majchrzak; Agata Szeląg

10:00 **1431** **Absorption and Transmission of Boundary Layer Noise through Thin Micro-Perforated Panel Structures**
Cedric Maury; Teresa Bravo

10:20 **Coffee Break**

10:40 **1630** **Acoustics of Micro-Perforated Orifice Plates**
Jennifer Lemne; Stefan Sack; Mats Åbom

11:00 **1940** **Sound Absorber Design of Multilayered Microperforated Panels Using Bayesian Inference**
Ning Xiang; Cameron Fackler; Yiqiao Hou

11:20 **1744** **Sound Quality Control by Microperforated Panel Housing Device**
Zhibo Wang; Yat Sze Choy

11:40 **1845** **Acoustic Characterization of Additive Manufactured Micro-Perforated Panel Backed by Honeycomb Structure**
Deepak Akiwate; Mahendra Date; B Venkatesham; Suryakumar S

12:00 **Lunch on Your Own**

13:40 **1707** **Design of Space Sound Absorbers with Micro-Perforated Stretch Ceiling**
Yueyue Wang; Junjuan Zhao

14:00 **1309** **Acoustic Absorption of a Microperforated Panel Without the Backing Cavity**
Cheng Yang

14:20 **1983** **A New Type of Sound Absorbing and Isolation Material - Microck Sound Insulation Board**
Yongkang Miao; Bin Shao; Shiyung Ma; Tungchen Chung

14:40 **1374** **Cooling, Heating, Sound-Absorbing, Lighting Ceilings**
Christian Nocke; Jean-Marc Scherrer

15:00 **Coffee Break**

10.3 Noise Policies and Regulations

Tuesday, 15:20 – 17:20, 5th Floor, Chicago G

Chairs: Arno Bommer, Doug Manvell

15:20 **1838** **Noise Ordinance Noise Level Limits, an Update of the EPA's 1975 Findings**
Leslie Blomberg

15:40 **2113** **What Exactly is the "Maximum Permissible Noise Level?"**
Cole Martin; Paul Burge

16:00 **1287** **Noise Protection in Urban Areas - the New Legal Framework in Germany**
Annett Steindorf

16:20 **1831** **Penalties for Noise Violations in the United States**
Leslie Blomberg; Owen Lenz

16:40 **1717** **Low Frequency Noise - The Long Way of Amending the German Standard for Measurement and Rating LFN**
Christian Fabris

17:00 **1527** **Development and the Regulations of the Noise Control of the Republic of China (Taiwan)**
Lin I-Chun

22.4 Vibro-Acoustics - Vibro-Acoustic Experiments

Tuesday, 09:00 – 09:20, 5th Floor, Chicago H

Chairs: Steve Hambric, Steve Conlon

09:00 **1275** **Tutorial on Wavenumber Transforms of Structural Vibration Fields**
Stephen Hambric; Andrew Barnard

09:20 **2121** **Low and High Level Acoustic Propagation in Waveguides: Vibroacoustic Coupling in a Bent Pipe at Low Frequency**
Romain Beauvais; Joel Gilbert; François Gautier; Adrien Pelat; Véronique Florquin; Guillaume Vandenbossche

09:40 **1807** **Application of an Experimental Modal Analysis on Composite Pressure Vessels for Monitoring Prestress Condition**
Sebastian John; René Eisermann; Georg Mair

10:00 **1731** **High-Resolution Vibration Measurement and Analysis of the Flight-LAB Aircraft Fuselage Demonstrator**
René Winter; Jörn Biedermann; Marco Norambuena

10:20 **Coffee Break**

10:40 **1532** **Analysis of the Impact of Different Types of Vibration Isolation on the Dynamic Loading of Machines and the Surrounding Environment**
Stanislav Ziaran; Ondrej Chlebo; Milos Musil

11:00 **1471** **Setting Up Plane and Thin Panels with Representative Simply Supported Boundary Conditions: Comparative Results and Applications In Three Laboratories**
Olivier Robin; Alain Berry; Noureddine Atalla; Mathieu Aucejo; Boris Lossouarn; Lucie Rouleau; Jean-François Deü; Christophe Marchetto; Laurent Maxit

11:20 **1770** **Notes on Measurement of Radiation Efficiency**
Steven Campbell; David Herrin; Brett Birschbach; Pat Crowley

11:40 **1668** **Lightweight Low-Frequency Metamaterial Dampers**
Ka Yan Au-Yeung; Zhiyu Yang

12:00 **1784** **The Measurement of Sound Scattering in a 1:8 Scale - Validation of the Measurement Stand and Procedure**
Aleksandra Majchrzak; Bartłomiej Chojnacki; Monika Sobolewska; Katarzyna Baruch; Adam Pilch

12:20 **Lunch on Your Own**

13:40 **1660** **Application of Panel Contribution Analysis Combined with Scale Modeling to Predict Sound Pressure Levels in a Bakery**
Gong Cheng; D. W. Herrin

14:00 **1489** **Acoustical Characteristics of Multi-Leak Signals in Submerged Pipelines**
Shuangjiang Zhang; Yan Gao; Xueyun Ruan; Yuyou Liu

14:20 **1412** **Development of Test System to Measure Anti Vibration Gloves Transmissibility at the Palm of the Hand**
Rafael Gerges; Samir Gerges

22.5 Vibro-Acoustics – Composite Panels

Tuesday, 16:40 – 15:40, 5th Floor, Chicago H

Chair: Steve Hambric

14:40 **1442** **Damping of Hybrid-Weave Composite Laminates**
Albert Allen

15:00 **1387** **Transmission Loss Adaption of Sandwich Panels with Honeycomb Core Variation**
Martin Radestock; Thomas Haase; Hans Peter Monner

15:20 **1886** **Numerical and Experimental Assessment of the Transmission Loss of Honeycomb Sandwich Panels**
Simone Baro; Roberto Corradi; Andrea Parrinello; Gian Luca Ghiringhelli

15:40 **Coffee Break**

22.7 Vibro-Acoustics - Numerical Methods

Tuesday, 16:00 – 17:40, 5th Floor, Chicago H

Chairs: Ricardo Alvarez, Steve Hambric

16:00 **1361** **Topology Optimization of Damping Material for the Acoustic Response of Plates**
Zhifei Zhang; Bi Wu; Zhongming Xu; Yansong He

16:20 **1864** **Performance of Multi-Orifice Resonator on Higher Order Modes of an Acoustic Cavity**
V S N Reddi Chintapalli; V S N Reddi CH; Jeyaraj P

16:40 **1617** **Influence of Internal Cavity in AIr-Borne Radiated Noise of an Underwater Structure**
Dooho Lee; Bong-Ki Kim; Hyun-Sil Kim; Seong-Hyun Lee

17:00 **2279** **Structural Topology Optimization with Stochastic Dynamic Response Constraints**
Xiaoyan Teng; Wenxiang Xiong; Hetao Zhao; Wenjin Zhu

17:20 **2111** **Uncertainty Analysis For Improved Correlation Of Airborne SEA Model**
Dilal Rhazi; Parimal Tathavadekar

7.3 Community Noise - Noise Mapping

Tuesday, 09:00 – 14:20, 4th Floor, Clark

Chairs: Eoin King, Jorge Arenas, Gaetano Licitra

09:00 **1393** **Noise Mapping in the EU: State of Art and 2018 Challenges**
Gaetano Licitra; Elena Ascari

09:20 **2215** **Preliminary Results of Dynamap Noise Mapping Operations**
Roberto Benocci; Fabio Angelini; Marco Cambuaghi; Alessandro Bisceglie; Hector Eduardo Roman; Rosa Ma Alsina-Pagès; Joan Claudi Socoró; Francesc Alías; Ferran Orgab; Giovanni Zambon;

09:40 **2176** **Spatial Statistical Modeling of Road Traffic Noise for Supporting Strategic Regional Planning**
Hunjae Ryu; Phillip Kim; Nokil Park; Bum Seok Chun; Seo Il Chang

10:00 **1931** **The Pilot Noise Map of Sao Paulo: First Findings and Next Steps**
Talita Pozzer; Marcos Holtz; Juan de Frias

10:20 **Coffee Break**

10:40 **1813** **Sensitivity Map - A Case Study in Sao Paulo, Brazil**
Teddy Kaeriyama Yanagiya; Juan Frías

11:00 **2097** **The Use of Pilot Areas as a Base for Large-Scale Strategic Noise Mapping: Technical Aspects and Application of Software Based Strategies**
Antonio Notario; Juan Frias; Talita Pozzer; Marcos Holtz; Nicolas Isnard

11:20 **2268** **Application Of Noise Map In Organic Renewal Of The Non-protected Districts**
Kong Jiangwei; Mengxi Gao; Ruhong Xin; Xiang Liu; Jian Zeng

11:40 **1675** **Development of Annoyance Map with Combined Noise of Aircraft and Road Traffic Noise Based on the Partial Loudness Model**
Chanil Chun; Doo Young Gwak; Kiseop Yoon; Soogab Lee

12:00 **Lunch on Your Own**

13:00 **1882** **Educational App for Traffic Noise Mapping**
Enrique Suarez; Jorge P. Arenas

13:20 **2130** **Transportation Noise and Public Health Outcomes: Biological Markers and Pathologies**
Enda Murphy; Jon-Paul Faulkner

13:40 **1759** **Study by Long-Term Measures about ISO 1996 Standard**
Juan Miguel Barrigón Morillas; David Montes González; Guillermo Rey-Gozalo; Pedro Atanasio Moraga; Rosendo Vílchez-Gómez; José Trujillo Carmona

14:00 **2264** **Strategic Versus Simplistic Noise Modelling of the Bay Area of California: Comparing the Impact on Policy and the Community**
Ben Hinze

12.1 Measurement Methods - Advances in

Tuesday, 16:00 – 17:40, 4th Floor, Clark

Chairs: Gilles Daigle, Kristin Cody

14:20 **1540** **Emergency Vehicle Detection Using Acoustic Source Localization Techniques**
Eoin King; Jarrett B. Lagler; Akin Tatoglu

14:40 **1688** **Measurement of Sound Pressure inside Tube using Optical Interferometry**
Denny Hermawanto; Kenji Ishikawa; Kohei Yatabe; Yasuhiro Oikawa

15:00 **1753** **Measurement of the Sound Transmission Loss of Rubber Seals Via the Aperture in Sound Barrier Fixture**
Juhyun Jeon; Yeon June Kang; Hyeongrae Lee; Hyunseok Choi

15:20 **1622** **Four-Microphone Measurement of Transmission Loss of Automotive Door Seals: Improved Correction Factor**
Weimin Thor; Zhuang Mo; J. Stuart Bolton

15:40 **Coffee Break**

16:00 **1409** **A High Performance Phase Correction Method for Sound Intensity Analysers**
Erlend Fasting; Ole-Herman Bjor

16:20 **1625** **A Semi Analytical Model to Estimate the Uncertainties of Wind-Induced Noise in a Screened Microphone**
David Ecotière

16:40 **1710** **Comparison of Noise Reduction Performance Evaluation Methods for Low-Noise Pavement in Korea**
Byungchae Kim; Kyoungwon Chae; Hyunjin Kim

17:00 **1752** **Comparing Steady State and Impulse Test Methods to Measure the Damping of Composites Applied to Homogeneous Substrates**
Jerrod Ward

17:20 **1549** **Innovative Approach to Noise Monitoring Using Programmable Audio DSP**
Ted Pyper

12.2 Measurement Methods - Acoustical Holography / Beamforming

Tuesday, 10:20 – 11:20, 5th Floor, Denver

Chairs: Gunnar Heilman, Stuart Bolton

09:00 **1423** **The Sound Source Location in Small Spaces Based on Phase Conjugation Method and Verification Experiment**
Song Liu; Maofa Li

09:20 **1451** **Sound Source Localization using Cylindrical Nearfield Acoustic Holography**
Chaitanya S K; Sonu Thomas; Srinivasan K

09:40 **1472** **Noise Source Identification in an Under-Determined System by Convex Optimization**
Tongyang Shi; Yangfan Liu; J. Stuart Bolton

10:00 **Coffee Break**

10:20 **1897** **Reconstruction of the Sound Field in a Room Based on Wavenumber Processing**
Efren Fernandez-Grande

10:40 **1829** **Microphone Arrays an a Wind Tunnel Environment with a Hard Reflective Floor**
Andy Meyer; Marie Pelz; Dirk Dobler

11:00 **2071** **Ultrasonic Hand Gesture Detection and Tracking using CFAR and Kalman Filter**
Qinglin Zeng; Zheng Kuang; Shuaibing Wu; Jun Yang

12:00 **Lunch on Your Own**

6.1 Classic Papers Student Paper Competition

Tuesday, 15:40 – 17:00, 5th Floor, Denver

Chairs: Jinghao Liu, Rui Cao

13:40 **2278** **An Overview of Eric E. Ungar and Donald Ross's 1964 paper, "Vibrations and Noise Due to Piston-Slap in Reciprocating Machinery"**
Steven Campbell

14:00 **2319** **Overview On A. Krokstad, S. Strom and S. Sorsdal's 1967 Paper Calculating The Acoustical Room Response By The Use of A Ray Tracing Technique**
Tongyang Shi

14:20 **2290** **A Review of R. Parker's "Resonance Effects in Wake Shedding from Parallel Plates"**
Connor McCluskey

14:40 **2274** **An Overview of R.J Alfredson and P. O. A. L. Davies paper on The Radiation of Sound from an Engine Exhaust and its influence on the Development of a Muffler Flow Insertion Loss Rig**
Jonathan Chen

15:00 **2291** **An Overview of Broner's 1978 Review Paper on the Effect of Low Frequency Noise on People and More Recent Research on the Effects of Low Frequency Noise**
Weonchan Sung

15:20 **Coffee Break**

15:40 **2283** **An Overview of R.J Alfredson and P. O. A. L. Davies paper on The Radiation of Sound from an Engine Exhaust and its influence on the Development of a Muffler Flow Insertion Loss Rig**
Suraj Prabhu

16:00 **2289** **An Overview of Crocker and Price's Paper on Sound Transmission Using Statistical Energy Analysis**
Yu Xiong; Edward Smith; Stephen Conlon

16:20 **2285** **An overview of W. A. Utley's paper on Single Leaf Transmission Loss at Low Frequencies and its influence on subsequent research and measurement standards**
Samuel Underwood; Lily Wang

16:40 **2282** **An Overview Of S. H. Candall's 1970 Paper On The Role Of Damping In Vibration Theory And Its Influence On Subsequent Research**
Sunit Girdhar

11.3 Industrial Noise - Large Silencers

Tuesday, 09:20 – 11:40, 5th Floor, Los Angeles

Chairs: Ray Kirby, Tim Wu

09:20 **2232** **The Impact of Design Details on Large Silencer Performance**
Paul Williams; James Hill; Jamie Thomson; Ray Kirby

09:40 **2035** **BEM Modeling of Large Silencers with Reflective Symmetry**
Hao Zhou; Peng Wang; Tim Wu

10:00 **2060** **Design of Large Reactive Silencers for Automotive Applications**
Ray Kirby; Akhilesh Mimani

10:20 **Coffee Break**

10:40 **2033** **BEM Analysis of Tuned Dissipative Silencers**
Peng Wang; Tim Wu

11:00 **1716** **A New Simulation and Optimization Tool for Calculating the Attenuation of Airborne and Structure-Borne Sound of Maritime Silencers**
Paul Lindner; Christian Schulze; Jörn Hübelt; Jan Troge; Tom Georgi

11:20 **2185** **Determination of a Power Transfer Matrix via a Boundary Element Method Determined Scattering Matrix**
Kangping Ruan; David Herrin; Tim Wu

11.5 Industrial Noise - Mining Noise

Tuesday, 13:40 – 15:00, 5th Floor, Los Angeles

Chairs: Hugo Camargo, Amanda Azman

13:40 **1418** **Low Speed Control Vortex Axial Fan Design for Minimum Noise**
Mark Hurtado; Ricardo Burdisso

14:00 **1462** **Exposure and Area Noise Assessment of Stone, Sand, and Gravel Mining Facilities**
Hugo Camargo; Amanda Azman; Kan Sun

14:20 **1389** **Redesign of Continuous Miner Scrubber Fan System Ductwork for Noise Reduction**
Kyle Schwartz; Matt Langford; Ricardo Burdisso

14:40 **1999** **Re-Packable Silencers to Reduce Noise Levels Generated by Mine Fans**
Felipe Calizaya; Sekhar Bhattacharyya

15:00 **Coffee Break**

11.6 Industrial Noise - Gear Noise

Tuesday, 15:20 – 16:20, 5th Floor, Los Angeles

Chair: Pravin Sondkar

15:20 **1816** **Transient Vibration of Tapered Roller Bearing Excited by Localized Damages on Cup Raceway**
Desheng Li

15:40 **1563** **An Analytical and Numerical Investigation of Modulation Sidebands of a Planetary Gear under Fluctuated External Torque**
Yunbo Yuan

16:00 **1565** **Free Vibration Analysis of Two-Stage Planetary Gear with Friction**
Wei Liu; Tao He

Wednesday, 29 August

Technical Sessions

19.3 Transportation Noise - Traffic Noise

Wednesday, 08:00 – 12:20, 4th Floor, Addison

Chairs: Adam Alexander, Jordi Romeu

08:00 **1736** **The Implementation of EC Directive 2015/996 for the Austrian Railway Network**
Christian Kirisits; Günter Dinhobl; Christoph Lechner

08:20 **1481** **Worst-Noise Traffic Conditions - A Case Study**
David Buehler

08:40 **2065** **Development of Traffic Noise Screening Tool**
Adam Alexander; Ahmed El-Aassar

09:00 **2072** **Field Measurements of Sound Power Levels of Vehicles Running on Japanese General Roads**
Miki Yonemura; Hyojin Lee; Shinichi Sakamoto

09:20 **1767** **Survey on Vehicle Horn Use at Intersections in Taipei City, Taiwan**
Shoki Tsunekawa; Kazuma Hashimoto; Tamaki Inada; Masayuki Takada; Yoshinao Oeda; Katsuya Yamauchi; Ki-Hong Kim; Shin-ichiro Iwamiya

09:40 **2004** **Collaborative Traffic Data for Road Noise Mapping**
Anderson Ladino Velásquez; Carolina Duque; Sergio Andrés Castrillón Idárraga; Andres Felipe Osorio Muriel; Jorge Mauricio Carranza Infante; Claudia Elena Durango Vanegas; Diego Mauricio Murillo Gómez

10:00 **2069** **Outdoor Sound Propagation Models to Reproduce Low-Frequency Adverse Wind Effect on Road Traffic Noise Propagation**
Takuya Oshima; Koya Hiroi; Yumi Kurosaka

10:20 **Coffee Break**

10:40 **2095** **Challenges of Defining Existing (Traffic) Noise Near Protected Species Habitat**
Tim Casey

11:00 **2155** **Spectral Comparison of Pass-By Traffic Noise**
Zhuang Li

11:20 **1979** **Localization of Heavy Truck Pass-By Noise Sources Using Acoustic Beamforming**
Paul Donavan; Carrie Janello

11:40 **1288** **Indoor Pass-by Noise Engineering to Understand Vehicle Noise Sources And Prediction Of Outdoor Noise Levels**
Andreas Schuhmacher; Ernesto Varricchio

12:00 **1756** **Analysis of Temporal Variations of Urban Noise in a Large City after the Application of European Noise Directive**
Juan Miguel Barrigón Morillas; Guillermo Rey Gozalo; David Montes González; Pedro Atanasio Moraga; Rosendo Vílchez-Gómez; José Trujillo Carmona

12:20 **Lunch on Your Own**

19.5 Transportation Noise - Perception of Electric and Hybrid Vehicles

Wednesday, 13:40 – 15:20, 4th Floor, Addison

Chairs: Ercan Altinsoy, Katsuya Yamauchi

13:40 **1316** **Experience and Perception of AVAS on Electric Vehicles in Norway**
Truls Berge

14:00 **1846** **Experimental Study on the Effect of Vertical Baffles on Liquid Sloshing Noise in a Partially Filled Rectangular Tank under Periodic Excitation**
Siva Teja Golla; Venkatesham Balide; Raja Banerjee

14:20 **1835** **Designing an Interior and Exterior Acoustical Brand Identity for Electric Vehicles by Means of Sound Synthesis**
David Welsh; Antonio Gomez; Jonathan Pierce

14:40 **2210** **Prediction of Detectability of Synthesized Vehicle Sounds Using Logistic Regression**
Lisa Steinbach; M. Ercan Altinsoy

15:00 **1619** **Effect of Amplitude Fluctuation on Detectability of Alert Sound for Electric and Hybrid Vehicle in an Actual Environment**
Nozomiko Yasui

13.5 Noise and Health - Occupational Noise

Wednesday, 08:00 – 10:20, 4th Floor, Armitage

Chairs: Jose Limardo, Daniel Carr

08:00 **1394** **Mining Hearing Conservation Programs: Do They Really Prevent Hearing Loss?**
Amanda Azman; Kan Sun

08:20 **1508** **Noise Exposure at Workstations in the Polish Medical Facilities - Pilot Study**
Bozena Smagowska; Dariusz Pleban

08:40 **2125** **Risk of Hearing Impairment Among Employees Using Communication Headsets**
Malgorzata Pawlaczyk-Luszczynska; Adam Dudarewicz; Kamil Zaborowski; Malgorzata Zamojska-Daniszewska

09:00 **1530** **Occupational Risk Assessment Related to Ultrasonic Noise**
Dariusz Pleban; Bozena Smagowska; Jan Radosz

09:20 **1783** **Awarding and Promoting Excellence in Initiatives to Control Noise and Prevent Hearing Loss**
Thais Morata; Bryan Beamer

09:40 **1376** **Analytical Modeling of Distributed Array of Resilient Particle Impact Dampers on a Cantilever Beam**
Kamil Kocak; Kenneth Cunefare

10:00 **1898** **International Space Station (ISS) Crewmembers' Noise Exposures**
Jose Limardo; Christopher Allen; Richard Danielson; Andrew Boone

10:20 **Coffee Break**

19.6 Transportation Noise - Transportation Sound Simulation and Environmental Impact

Wednesday, 11:00 – 14:40, 4th Floor, Armitage

Chairs: Roalt Aalmoes, Stephen Rizzi

11:00 **1338** **Psychoacoustic Test to Determine Sound Quality Metric Indicators of Rotorcraft Noise Annoyance**
Siddhartha Krishnamurthy; Andrew Christian; Stephen Rizzi

11:20 **1353** **Auralization of an Unmanned Aerial Vehicle under Propeller Phase Control**
Kyle Pascioni; Stephen Rizzi; Aric Aumann

11:40 **1507** **Virtual Reality Aircraft Noise Simulation for Community Engagement**
Roalt Aalmoes; Merlijn Boer; Henk Veerbeek

12:00 **Lunch on Your Own**

13:40 **1352** **Receiver-Based Auralization of Broadband Aircraft Flyover Noise Using the NASA Auralization Framework**
Aric Aumann; Stephen Rizzi; Stephanie Heath

14:00 **1535** **Perception and Presence in Virtual Reality for Simulated Aircraft Noise**
Noah Letwory; Roalt Aalmoes; Maykel Miltenburg

14:20 **1654** **Ambisonic Auralisations for Community Consultation of Traffic Noise Impacts and Mitigation Measures**
Daniel Jimenez; Mitchell Allen; Chris Nugroho

3.3 Aircraft Noise - Exterior Noise

Wednesday, 08:20 – 14:40, 4th Floor, Belmont

Chairs: Carsten Spehr, Takatoshi Yokota

08:20 **1758** **Comparison of Lateral Attenuation at the Four Airports in Japan**
Yasuaki Kawase; Kazuyuki Hanaka; Naoaki Shinohara; Koichi Makino; Ippei Yamamoto

08:40 **1659** **Numerical Study on the Effect of Wind on Sound Propagation over Sea Surface by Finite-Difference Time-Domain Method**
Takatoshi Yokota; Koichi Makino; Ippei Yamamoto

09:00 **2037** **Quantifying the Effect of Uncertainty in Meteorological Conditions on Aircraft Noise Propagation**
Harshal Patankar; Victor Sparrow

09:20 **2000** **Atmospheric Propagation Model Validation with the NRC Convair 580 Aircraft**
Sebastian Ghinet; Andrew Price; Gilles Daigle; Michael R. Stinson; Anant Grewal; Viresh Wickramasinghe

09:40 **1689** **Uncertainties due to Doppler's Shift on Aircraft Noise Prediction**
Yiming Wang; Kai Ming Li

10:00 **Coffee Break**

10:20 **1435** **Validation of the sonAIR Aircraft Noise Simulation Model - a Case Study for Schiphol Airport**
David Jaeger; Christoph Zellmann; Dick G. Simons; Mirjam Snellen; Jean Marc Wunderli

10:40 **1509** **New Approachs For The Dynamic Recording Of Aircraft Noise As A Base For Modeling**
Philipp Schwizer

11:00 **1382** **Localization of Noise Sources around Aircraft in Flight Based on Time-Domain Beamforming Technique**
Takehisa Takaishi; Kazuomi Yamamoto; Tomohiro Kobayashi; Takatoshi Yokota

11:20 **1839** **Precise Sound Source Model for Aircraft Noise Prediction Based on Noise Source Distribution Determined by**

Phased Array Beamforming
Tomohiro Kobayashi; Takatoshi Yokota; Koichi Makino; Takehisa Takaishi

11:40 **Lunch on Your Own**

13:20 **1795** **Validation of Aircraft Noise Prediction Models**
Hua He

13:40 **1884** **Acoustic Analysis of STEX Inlet on Fan Noise Radiation**
Paul Slaboch; David Stephens; Christopher Miller

14:00 **1337** **Parametric Aircraft Configuration Optimization according to ICAO Annex 16 Certification Standards and Sound Quality Evaluation within Conceptual Aircraft Design**
Miguel Yael Pereda Albarran; Eike Stumpf

14:20 **1721** **Study on Effects of Aircraft Takeoff Thrust Reduction on Noise at Narita Airport**
Toshiyasu Nakazawa; Naoaki Shinohara; Kazuyuki Hanaka

5.11 Building and Architectural Acoustics - Predictions and Prediction Methods

Wednesday, 08:00 – 12:20, 5th Floor, Chicago A

Chairs: Carolina Monteiro, John Davy and Berndt Zeitler

08:00 **1825** **The STI-Matrix - An Innovative Simulation-Based Method for the Acoustic Evaluation and Assessment of Offices and Public Areas**
Michael Boehm

08:20 **1468** **The Effect of Mechanical Connectors on the Sound Insulation of Structural Insulating Panels**
Arne Dijckmans; Lieven De Geetere; Debby Wuyts; Bart Ingelaere

08:40 **1908** **Prediction of Noise Caused by Structure-Borne Sound Sources**
Oliver Kornadt; Albert Vogel; Conrad Völker

09:00 **1276** **The Equivalent Translational Compliance of Steel Studs with Different Steel Gauge Thicknesses**
John Laurence Davy; Waylang Dong; John LoVerde; Mohammad Fard

09:20 **1463** **Rolling Noise Modeling in Buildings**
Matt Edwards; Fabien Chevillotte; François Xavier Becot; Luc Jaouen; Nicolas Totaro

09:40 **Coffee Break**

10:00 **1529** **Limits for Stage Machinery Noise**
Anton Melnikov; Ingo Witew; Marcus Maeder; Monika Gatt; Michael Scheffler; Steffen Marburg

10:20 **1804** **Acoustic Design of Voice Booths in Open Plan Offices by Modal Analysis**
Rânnely Silveira Nogueira de Araújo; Carolina Monteiro; Marcel Borin; Marcos Holtz

10:40 **1658** **Characterization of Low Frequency Behavior in a Reverberation Room using Simulation**
Jonathan Chen; D. W. Herrin; Charles Moritz; Jennifer Shaw

11:00 **1578** **Investigation into the Directional Distribution of Incident Acoustic Energy on the Boundary of a Reverberation Chamber**
RuiLin Mu; Xiang Yan

11:20 **2133** **Uncertainty Quantification of Sound Transmission Measurement Procedures Based on the Gaussian Orthogonal Ensemble**
Cédric Van Hoorickx; Edwin Reynders

11:40 **1585** **The Use of Ray Tracing Method to Predict Sound Transmission Across Heavily Damped Plates under the Framework of Statistic Energy Analysis (SEA)**
Feng Yan; Robin Wilson

12:00 **1984** **Measurement and Prediction of Flanking Transmissions in Wooden CLT Constructions using Reverse-SEA**
Jean-Luc Kouyoumji; Marta Fuente Gonzalez; Renaud Blondeau Patissier

12:20 **Lunch on Your Own**

5.5 Building and Architectural Acoustics - Case Studies

Wednesday 08:00 – 12:20, 5th Floor, Chicago B

Chairs: Erik Miller-Klein, Paul Bauch and Marcos Holtz

08:00 **1466** **Acoustic Impact on Collaborative Teaching and Learning Activities In Open Learning Spaces**
Colin Campbell; Jeroen Vugts; Esther van Oorschot-Slaat; Holger Brokmann

08:20 **1434** **Resilient Channel: One Screw Makes a Difference**
Matthew Golden; Alexander Vaisman

08:40 **1893** **Evaluation of Sound Field Spatial Uniformities in Offices Provided by Surface-Mounted Sound Masking Systems vs Plenum-Mounted Systems**
André L'Espérance; Louis-Alexis Boudreault; Nicolas Demers; Roderick Mackenzie

09:00 **1551** **Measuring the Impact of a High-Performance All-Glass Building on the Indoor Acoustic Environment and the Occupants Perception of Health, Satisfaction and Productivity**
Stanley Gatland II; Ihab Elzeyadi; Aldo Glean; Yacine Djama

09:20 **1919** **Efficacy of a Biophilic Sound Masking System**
Simon Goddard

09:40 **2140** **Absorption Treatment in Million Cubic Foot Public Space**
Jim Borzym

10:00 **Coffee Break**

10:20 **2002** **Writers Theatre, from Concept through Completion**
Gregory Miller; Laura Brill; John Strong; Carl Giegold

10:40 **2005** **Use of PRINCE2 as a Project Management Approach for Spatial Audio Developments**
Diego Mauricio Murillo Gomez; Luis Alberto Tafur Jiménez

11:00 **1746** **An Evaluation of the Railway Noise Reduction Performance of Different Balcony Door Designs in Hong Kong**
Ka-Fai Chiu; David B. K. Yeung; Ching Chan

11:20 **1580** **Objective and Subjective Sound Environment in University Student Dormitories**
Fan Xu; Qi Meng; Jian Kang; Yanjun Han

11:40 **1366** **Fitness Facility Noise Criteria for a Multi-Use Building**
Anthony Nash; Christopher Peltier

12:00 **1852** **Acoustical Comfort in Classrooms - Case Study at the University of Brasilia**
Clarice Daga; Hetty Lobo; José Lobo; Carlos Luna

12:20 **Lunch on Your Own**

13.2 Noise and Health - Noise Effects of Environmental and Transportation Noise

Wednesday, 08:00 – 12:00, 5th Floor, Chicago C

Chairs: Judy Rochat, Rick Norman

08:00 **1473** **International Space Station Acoustics - A Status Report**
Chris Allen

08:20 **1329** **Community Response to Step-Changes in Railway Noise Exposure and Effects of Earthquakes**
Yasuhiro Murakami; Takashi Yano; Makoto Morinaga; Shigenori Yokoshima

08:40 **1877** **Global Noise Insensitivity - A Complex Analysis of the Problem**
Monika Sobolewska; Aleksandra Majchrzak; Bartłomiej Chojnacki; Katarzyna Baruch; Adam Pilch

09:00 **1948** **Artificial Neural Network Models between Road Traffic Noise and Urban Form Indicators in Different Cities**
Phillip Kim; Hunjae Ryu; Jong June Jeon; Seo Il Chang

09:20 **Coffee Break**

09:40 **1805** **A Research Roadmap for Aircraft Noise**
Nicole Porter; Rick Norman; Xavier Oh; Andy Knowles; Rick Norman; Rick Norman

10:00 **1737** **The Effects of Annoyance due to Aircraft Noise on Psychological Distress**
Clémence Baudin; Marie Lefèvre; Patricia Champelovier; Jacques Lambert; Bernard Laumon; Anne-Sophie Evrard

10:20 **1318** **Assessing Aircraft Noise Conditions Affecting Classroom Behaviors**
Mary Ellen Eagan; Charlotte Clark; Gary Evans; Mel Smuk

10:40 **1841** **Aircraft Noise Exposure and Objective Sleep Quality in the Population Living near Airports in France**
Ali Mohamed Nassur; Marie Lefèvre; Maxime Elbaz; Fanny Mietlicki; Philippe Nguyen; Carlos Ribeiro; Matthieu Sineau; Damien Leger; Bernard Laumon; Anne-Sophie Evrard

11:00 **1823** **Long-Term Follow-Up Study of Community Response to Step-Change in Aircraft Noise Exposure around Noi Bai International Airport**
Thu Lan Nguyen; Takashi Yano; Yasuhiro Hiraguri; Makoto Morinaga; Takashi Morihara; Thao Linh Nguyen; Bach Lien Trieu; Thanh Loc Bui

11:20 **2056** **Study on the Influence of Traffic Noise on Animals and their Adaptive Strategies**
Ruhong Xin; Yuanyuan Zhang; Jiangwei Kong; Xiang Liu; Jian Zeng

11:40 **1879** **Social Survey on Community Response to Road Traffic Noise in Kinshasa, Democratic Republic of the Congo**
Junior Nzelengenge Tambiki; Keiji Kawai

12:00 **Lunch on Your Own**

21.5 Vehicle Noise, Vibration, and Harshness - Passive and Active Noise Control

Wednesday, 08:00 – 10:20, 5th Floor, Chicago F

Chairs: Prakash Thawani, Gordon Ebbitt

08:00 **1469** **Weight Minimization of Automotive Sound Packages in the Presence of Air Leaks**
Hyunjun Shin; J. Stuart Bolton

08:20 **2126** **Attenuating Axial Pipe Resonances in Exhaust Systems using Micro-Perforated Patches**
Xin Hua; Brandon Sobecki; James Egan; Yuntian Wang

08:40 **1787** **Analysis of a Battery Electric Vehicle Interior Mid-frequency Noise and Sound Package Optimization Based on Hybrid FE-SEA Method**
Xian Wu; Meng Zhao

09:00 **1648** **A Systematic Approach Study of Active Road Noise Control in Vehicles**
Xiaojun Chen; Wei Huang; Longchen Li; Hailin Ruan; Changwei Zheng; Xiujie Tian; Keda Zhu

09:20 **1981** **Active Sound Quality Control for Subjective Preference**
Kenta Murai; Shunsuke Ishimitsu

09:40 **1491** **A Study On Improving The Sound Quality Of Electric Vehicles By Using Subharmonics**
Yongji Zhao; Yaxuan Sun

10:00 **1437** **COMSOL Model for an Enclosed Coaxial Carbon Nanotube Speaker**
Suraj Prabhu; Andrew Barnard

10:20 **Coffee Break**

16.7 Sound Quality and Product Noise - Psychoacoustics in Noise Evaluation

Wednesday, 10:40 – 11:00:00 AM, 5th Floor, Chicago F

Chairs: Sonoko Kuwano, Takeo Hashimoto

10:40 **1346** **Evaluation of Noise Emitted from Construction Machine**
Takeo Hashimoto; Shigeko Hatano

11:00 **1499** **Cross-Analyses of a Social Survey of Wind Turbine Noise in Japan**
Sonoko Kuwano; Takashi Yano; Takayuki Kageyama; Hideki Tachibana

11:20 **1539** **Simulation and Detection of Intermittent Sounds in Wind Noise Tests on Automobiles**
Daniel Carr; Patricia Davies

11:40 **1524** **The Characterization of Pleasant and Unpleasant Fan Sounds by Semantic Profiles and their Relationship to Patterns of the Specific Loudness**
Stephan Toepken; Steven Van De Par

12:00 **Lunch on Your Own**

13:00 **1653** **Interaction between Vehicle Interior Noise and Steering Vibration on the Uncomfortableness in Cabin**
Junji Yoshida; Mutsuki Sakuramoto; Yoshiyuki Sukegawa

13:20 **1422** **Evaluation of Subjective Impressions of the Sound of Dental Drills**
Tomomi Yamada; Sonoko Kuwano; Shigeyuki Ebisu; Mikako Hayashi

13:40 **1623** **Threshold-Based Headphone Equalization**
Florian Völk

14:00 **1887** **The Subjective Analysis of Wheel-Rail Squealing Noise by Modification of the British Standard BS 4142:2014**
Giora Rosenhouse

14:20 **1682** **Analysis on Korean Emotion Vocabulary due to Inter-Floor Noise using Word Embedding**
Hyekyung Shin; Kyoung-wpo Kim; Kwan-seop Yang

14:40 **1615** **Difference of Perceived Loudness of Sounds between Chinese Males and Females**
Mariko Tsuruta-Hamamura; Jiaming Wang; Manami Aono; Shin-Ichiro Iwamiya

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1.1 Acoustic Materials - Advances in

Wednesday, 08:00 – 11:20, 5th Floor, Chicago G

Chairs: Olivier Robin, Luc Jaouen

08:00 **1324** **Compact 2DOF Liner Based on a Long Elastic Open Neck Acoustic Resonator**
Frank Simon; Delphine Sebbane

08:20 **1883** **Acoustic Performance of Additively Manufactured Reeds as an Absorber**
WeSaam Lepak; Michael Sterner; Paul Slaboch

08:40 **1478** **A Comparison between Glass Fiber and Polymeric Fiber when Serving as a Structural Damping Medium for Fuselage-Like Structures**
Yutong Xue; J. Stuart Bolton

09:00 **1799** **Enlarging Sound Attenuation in the Low Frequency Domain by Giving a Poroelastic Material a Lamella Structure**
Olivier Robin; Nicolas Dauchez; Benoit Nennig; Li Ke

09:20 **1542** **How to Model the Acoustic Properties of a Solid Foam with Thin Membranes?**
Camille Gaulon; Juliette Pierre; Caroline Derec; Fabien Chevillotte; François-Xavier Bécot; Luc Jaouen; Florence Elias; Wiebke Drenckhan; Valentin Leroy

09:40 **1662** **Determination of Effective Parameters of Acoustic Fabrics including Applications**
Weiyun Liu; D. W. Herrin

10:00 **Coffee Break**

10:20 **1809** **The Experiment of Permeable Ceramic as Sound Absorption Material**
Hui Li; Xiang Yan

10:40 **1697** **Advances In Technology - Novel Solutions for Pipe Noise Mitigation**
Richard Pamley; Mark Swift

11:00 **1933** **Sound Absorption Characteristic of Glass and Plastic Bottles - Considerations of their Dependences on Material Properties**
Teruo Iwase; Satoshi Sugie; Hiroyasu Kurono; Masayuki Abe; Yasuaki Okada; Koichi Yoshihisa

12:00 **Lunch on Your Own**

22.7 Vibro-Acoustics - Numerical Methods

Wednesday, 08:00 – 10:20, 5th Floor, Chicago H

Chairs: Ricardo Alvarez, Steve Hambric

08:00 **1681** **Implementation of Impedance Bounday Condition in Scaled Boundary FEM for Mid-Frequency Acoustics**
Sundararajan Natarajan; Chandramouli Padmanabhan

08:20 **1757** **A Transient Hybrid FE-SEA Method**
David Hawes; Robin Langley; Yuki Ishii

08:40 **2234** **Open Station Vehicle Noise Performance Assessment and Improvement Using SEA**
Sandeep Burli

09:00 **1850** **Energy Sharing between Nonlinear Structures by Entropy Modelling**
Antonio Culla; Antonio Carcaterra

09:20 **2270** **High Frequency Vibro-Acoustic Fatigue Analysis with a Radiosity Based Theory**
Qiang Zhong; HB Chen

09:40 **1871** **Thermodynamics of High Frequency Nonlinear Vibrations**
Antonio Carcaterra; Antonio Culla

10:00 **1957** **An Investigation of Ultrasonic Transducer Loading on a Workpiece**
Marco Zennaro; Dan O'Boy; Alex Haig; Stephen Walsh

10:20 **Coffee Break**

22.9 Vibro-Acoustics - Inverse Approaches

Wednesday, 10:40 – 14:40, 5th Floor, Chicago H

Chair: Haijun Wu

10:40 **1674** **Combination Analysis of Operational TPA and CAE for Extraction of High Contributing Vibration Mode to Vehicle Interior Road Noise**
Ryo Majima; Junki Isemura; Daiki Hayashi; Junji Yoshida

11:00 **1768** **Selection of Input Force Locations when Determining Blocked Forces**
Keyu Chen; David Herrin

11:20 **2243** **Application of Acoustical Wave Propagator for the Determination of Impact Force on a Thin Elastic Plate**
Ning Wang; Jie Pan

11:40 **2070** **Vibration Field Rendering for a Point-Excited Rectangular Panel Speaker**
Ki-Ho Lee; Jeong-Guon Ih

12:00 **Lunch on Your Own**

13:40 **2147** **Enhancing the Accuracy in Reconstruction of Vibro-Acoustic Responses of a Complex Structure using Helmholtz Equation Least Squares Based Nearfield Acoustical Holography**

Logesh Kumar Natarajan; Sean F. Wu

14:00 **1428** **A Comparison of Sound Field Reconstructions Using a Spherical Wave Model and a Plane Wave Model**
Kean Chen; Yan Wang; Xiyue Ma; Jian Xu; Bing Zhou

14:20 **1569** **An Inverse Patch Transfer Function Method Based on the Green's Function in Free Field**
Dou Li; Haijun Wu; Liang Yu; Weikang Jiang

12.1 Measurement Methods - Advances in

Wednesday, 08:00 – 11:00, 4th Floor, Clark

Chairs: Gilles Daigle, Kristin Cody

08:00 **1774** **A Comprehensive Integrated Solution For Environmental Noise Monitoring**
Bob Selwyn

08:20 **1761** **A Metrology Technique for Airborne Ultrasound in Occupational Health Based on High Spatial Resolution Scans at a Reference Workplace**
Robert Schöneweiß; Christoph Kling; Christian Ullisch-Nelken; Andrea Wolff; Christian Koch

08:40 **1411** **Potential Inconsistencies in Conformity Declarations Caused by Different IEC 61672-3 Acoustical Test Methods in Current Sound Level Meters**
Elvis Alexandre Antonio de Freitas Gouveia Alves; David Bello Bondarenco; Jorge Enrique Bondarenco Zajarkievaiech

09:00 **1849** **Volumetric Sampling of the Sound Field in a Room**
Samuel Arturo Verburg; Efren Fernandez-Grande

09:20 **2150** **Measurements of Environmental Noise using a Direction of Sound Arrival Identifier**
Naru Sato; Kenji Shinohara; Norihito Sunago; Keishi Sakoda

09:40 **Coffee Break**

10:00 **2023** **A Round Robin Study of Sound Power Measurement Methods to Determine Reproducibility and Bias**
Samuel Underwood; Lily Wang

10:20 **1962** **Approximation of a Measurement Surface for the Determination of the Sound Power Level of a Large-Scale Industrial Plant**
Christian Fabris

10:40 **1806** **Optical Visualization of Sound Field inside Transparent Cavity using Polarization High-speed Camera**
Kenji Ishikawa; Kohei Yatabe; Yasuhiro Oikawa; Takashi Onuma; Hayato Niwa

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12.4 Measurement Methods - Environmental Management through Monitoring

Wednesday, 11:00 – 15:00, 4th Floor, Clark

Chairs: Doug Manvell, Arno Bommer

11:00 **1407** **Monica, a European Project Focused on the Internet Of Things for the Acoustic Quality and Safety of Outdoor Large Scale Events**
Bruno Vincent; Karim Haddad; Enrico Gallo; Christophe Doucet; Diego Caviedes Nozal; Marco Jahn; Vincent

Gissinger; Wookeun Song

11:20 **2251** **Use of Long Term Monitoring Data to Determine Variations of Sound Levels in Urban Sound Environment**
Yuyou Liu; Wencheng HU; Yan Gao; Paul Shields

11:40 **1621** **An Innovative Low Cost Sensor for Urban Sound Monitoring**
Jérémy Ardouin; Ludovic Charpentier; Mathieu Lagrange; Félix Gontier; Nicolas Fortin; David Ecotière; Judicael Picaut; Christophe Mietlicky

12:00 **2183** **Real-Time, Automated Noise Impact Assessment Monitoring of an Industrial Facility**
Anthony Gerard; Marc Poirier; Michel Pearson; Roderick Mackenzie; Philippe Laliberté

12:20 **Lunch on Your Own**

13:20 **1723** **Combining Noise and Weather Data in Real-Time Monitoring**
Douglas Manvell

13:40 **2018** **Ensuring the Future of Mining with Advances in Compliance Monitoring**
Patrick Dzijacky

14:00 **1583** **A Study on Possible Solutions to the Challenges Associated with Limited Survey Locations in Community Noise Measurement Based on Noise Mapping in China**
Jiping Zhang; Heng Ma; Peng Chen; Zheming Wang

14:20 **1728** **Reduction of Uncertainties for a Model Based Measurement System for Impulsive Sound Events**
Frits Van der Eerden; Peter Wessels; Frank Van den Berg; Anneke Kruyen

14:40 **2003** **Community Noise and Cruise Vessels Implementing Shore Power at the Port of Vancouver**
Gary Olszewski; Bryce Docker; Douglas Manvell

7.4 Community Noise - Wind Turbine Noise

Wednesday, 08:00 – 11:20, 5th Floor, Denver

Chairs: Norm Broner, Mark Bastasch

08:00 **1302** **Noise and Vibration from Urban Wind Turbines**
Stephen Dance; Ben Dymock

08:20 **1973** **Regulating and Predicting Wind Turbine Sound in the U.S.**
Robert ONeal; Kenneth Kaliski; Mark Bastasch

08:40 **2020** **Wind Turbine Noise Measurements in Chile**
José David Parra; Christian Darr; Enrique Suárez; Jorge Arenas; Ricardo Burdiso; Sterling McBride; Igor Valdebenito

09:00 **2225** **Acoustic Characterization of Wind Farms in Chile: Wind Turbine Noise Measurements throughout the Country**
Nicolás A. Bastián-Monarca; Juan Pablo Álvarez; Christian Darr; José David Parra; Jorge P. Arenas; Enrique Suárez

09:20 **1420** **Directivity of Amplitude Modulated Sound around a Wind Turbine under Actual Meteorological Conditions**
Yasuaki Okada; Koichi Yoshihisa; Sinya Hyodo

09:40 **1567** **Signal Enhancement Method on Wind Turbine Blade Fault Inspection**

Tsung-Hsien Tu; Fang-Chun Lo; Pei-Yao Yu; Chiou-Fong Chung; Ruey-Chyi Chen

10:00 **Coffee Break**

10:20 **2280** **MW Wind Turbine Noise Measurement and Assessment of Low-Frequency Tonal Noise**
Eunkuk Son; Gwang-Se Lee; Sungmok Hwang; Jinjae Lee; Seungjin Kang; Sail Park; Seokwoo Kim

10:40 **2167** **A Practical Method for Estimating a Presence of a Prominent Tonal Component in Wind Turbine Noise**
Sakae Yokoyama; Tomohiro Kobayashi; Hideki Tachibana

11:00 **1315** **Effects of Infrasound Exposure on Humans**
Andrea Bauerdorff

12:00 **Lunch on Your Own**

11.7 Industrial Noise - Case Studies

Wednesday, 08:00 – 10:00, 5th Floor, Indiana

Chairs: Jinghao Liu, Xin Hua

08:00 **1310** **Low-Frequency Pulsation from a Package Boiler**
Tyler Dare; Benjamin Beck; William Bonness; Suzana Rufener; Tom Flynn

08:20 **1635** **Resolution of an Environmental Noise Problem Caused by a 345 KV Power Pole**
David Parzych

08:40 **2186** **Transformer Noise Reduction using Acoustical Blankets Installed with Magnetic Mounting Bracket**
Pierre-Claude Ostiguy; Anthony Gérard; Roderick Mackenzie; Michel Pearson; André L'espérance

09:00 **1577** **Study on Structure Borne Noise Prediction and Reduction Design of Underwater Platform Mounted Equipment for Military**
Jong-Ik Jeon

09:20 **1972** **The Impact of Wind Direction on Flare Noise in Suburban Area: Sound Pressure Level Distribution**
Dhany Arifianto; Ainun Nadiroh

09:40 **1826** **Analyzing Field Environments to Generate a New, Better Test**
Jade Vande Kamp; Aaron Offringa

10:00 **Coffee Break**

12:00 **Lunch on Your Own**

5.8 Building and Architectural Acoustics - Acoustic Regulations, Enforcement and Classification for New, Existing, and Retrofitted Buildings

Wednesday, 09:00 – 11:40, 5th Floor, Los Angeles

Chairs: Birgit Rasmussen, Jeong-Ho Jeong

09:00 **1740** **Acoustic Classification of Noise in Bathroom of Residential Building through Auditory Experiment**
Jongkwan Ryu; Hansol Song

09:20 **1294** **Challenges for Noise Relevant Urban Development - The Case of Hamburg Stelling**
Andrey Yordanov

09:40 **2006** **Developing Classifications using a Dual-Rating Method of Evaluating Impact Noise**
John LoVerde; Wayland Dong

10:00 **Coffee Break**

10:20 **2245** **Survey on Adverse Impacts of Construction Noises through Construction Stages**
Sungchan Lee; Jae Ho Kim; Joo Young Hong

10:40 **2172** **Auditory Experiment for Classification Scheme on Rubber Ball Impact Sound**
Jeong-Ho Jeong

11:00 **2047** **A Pilot Study on Acoustic Regulations and Classification for Hospitals & Comparison between the Nordic Countries**
Birgit Rasmussen

11:20 **2326** **A Pilot Study on Acoustic Regulations and Classification for Office Buildings - Comparison between the Nordic Countries**
Birgit Rasmussen

12:00 **Lunch on Your Own**

8.1 Advances in Construction Noise

Wednesday, 08:40 – 10:20, 5th Floor, Northwestern

Chairs: Shiu-Keung Tang, Paul Burge

08:40 **2269** **Real-Time Vibration Monitoring of Demolition Activities Directly above Sensitive Power Facilities**
Shiu-keung Tang; Chi-chung NG; Kei-Choi Mak

09:00 **1458** **Reduction of Construction Machinery Noise in Multiple Dominant Frequencies Using Feedforward Type Active Control**
Laura Kanazawa; Koichi Mizutani

09:20 **1854** **Roadway Construction Noise Model Version 2.0 Data Collection Program**
Sharon Carpenter; Dayna Bowen

09:40 **2132** **Close-Proximity Demolition and Construction Vibration**
Keith Yoerg; Judy Rochat

10:00 **1970** **Identification of Modular Construction Activity Noise Levels by using K-Means Clustering**
Sanam Dabirian; Sanghyeok Han; Joonhee Lee

10:20 **Coffee Break**

12:00 **Lunch on Your Own**
