

# TECHNICAL PROGRAM OVERVIEW | MONDAY

ROOM	08:00	08:30	08:40	09:00	09:20	09:40	10:00	10:20	10:40	11:00	11:20	11:40	12:00	12:20	12:40	13:00	
Club Room	Public Outreach Session																
Nob Hill A				13.01 Flow Noise													
Nob Hill B				5.03 Barriers													
Nob Hill C				16.08 Fitness Center Noise & Vibration Control													
Salon 1				16.04 Lightweight Construction Noise Control													
Salon 2				16.01 Building Noise Measurements & Modeling													
Salon 3				8.04 Soundscapes													
Salon 4				2.04 Vehicle Noise													
Salon 5				11.05 Ship and Offshore Noise and Vibration													
Salon 6				14.01 Industrial Mufflers					18.03 Sound Visualization and Manipulation								
Salon 7	Plenary Session																
Salon 8																	
Salon 9																	
Salon 10				19.03 Environmental Noise Management													
Salon 11				5.02 Active Noise Control													
Salon 12				5.01 Absorption Materials and Treatments													
Salon 13				18.05 Aero-Acoustic Experiments													
Salon 14				6.02 Vibration of Structures													
Salon 15				9.01 Analytic Modeling													

LUNCH ON YOUR OWN

13:20	13:40	14:00	14:20	14:40	15:00	15:20	15:40	16:00	16:20	16:40	17:00	17:20	17:40	18:00	20:00
12.01 Ground-borne Noise and Vibration Mitigation for Transit Systems															
8.07 Psychoacoustics															
8.02 Psychological Effects of Noise															
18.02 Inverse Approaches in Vibro-Acoustic															
								7.04 Noise Mapping							
Tutorial Lecture															
16.01 Building Noise Measurements & Modeling															
8.04 Soundscapes															
2.04 Vehicle Noise															
11.05 Ship and Offshore Noise and Vibration							11.07 Turbomachinery Noise								
18.03 Sound Visualization and Manipulation															
Poster Session								Poster Session							
														Welcome Reception	
1.01 Consumer Products							7.03 Industrial Noise								
5.02 Active Noise Control															
5.01 Absorption Materials and Treatments															
18.06 Vibration and Vibro-Acoustic Experiments															
6.02 Vibration of Structures															
9.02 Acoustic and Noise Measurements															

# TECHNICAL PROGRAM OVERVIEW | MONDAY DETAIL

## Monday, 10 August

### Special Session

Club Room

**08:30–16:00 Public Outreach Conference & Workshop — Community Noise & Natural Quiet**  
Larry Finegold

### 13.01 Flow Noise

Nob Hill A

Chair: Jari Jathavadekar

- 09:00 6 Concurrent finite element simulation of incident and diffracted flow noise in computational aeroacoustics**  
Oriol Guasch, Arnau Pont, Joan Baiges, and Ramon Codina
- 09:20 459 Study on acoustic and flow induced noise characteristics of T-shaped rectangular cross-sectional pipe**  
Masaaki Mori, Takayuki Masumoto, and Kunihiko Ishihara
- 09:40 1009 Experiments on porous liners in a flow duct at low Mach numbers**  
Feng Peng, Yaoguang Liu, and Xiaolin Wang
- 10:00 760 Differentiation of impinging jet noise**  
Abhijit Dhamanekar and K. Srinivasan
- 10:40 309 Noise from pulsating supercavities and its control**  
Timothy A. Brungart, Grant M. Skidmore, Jules W. Lindau, and Michael J. Money
- 11:00 503 Study on production mechanisms of sibilants using simplified vocal tract model**  
Tsukasa Yoshinaga, Narihiko Koike, Kazunori Nozaki, and Shigeo Wada
- 11:20 839 Analysis of outer flow effects on wall pressure spectra through underwater velocity and pressure measurements**  
Massimo Miozzi, Giovanni Aloisio, Massimo Falchi, and Elena Ciappi
- 11:40 943 Flow generated noise inside mufflers**  
Tamer Elnady, Ahmed Abosrea, Waleed Elsallamy, and Waleed Elsallamy

### 12.01 Ground-borne Noise and Vibration Mitigation for Transit Systems

Nob Hill A

Chair: Hugh Saurenman

- 13:40 821 Modeling the effects of structure mass in reducing ground-borne vibration and ground-borne noise in rail transit systems**  
Herbert Singleton and Scott Edwards
- 14:00 256 Developing tools to support multimodal environmental modeling**  
Christopher Roof, Gregg Fleming, Aaron Hastings, and Andrew Hansen
- 14:20 139 Noise and vibration from road discontinuities**  
Judith Rochat and Tony Evans

**14:40 598 Methods and challenges of predicting transit noise in sensitive spaces**

Andy Wong

**15:00 460 The effects of a large demolition project on adjacent buildings**

David Buehler

**5.03 Barriers**

Nob Hill B

Chairs: Kohei Yamamoto and Jean-Pierre Clairbois

**09:00 82 Sound reflection and sound insulation measurement on a sonic crystal noise barrier according to the new European methodology**

M. Garai, P. Guidorzi, F. Morandi, and A. Marzani

**09:20 448 Experimental study on the contributions to the sound insulation performance enhancement obtained via wall greening**

Takafumi Shimizu, Toru Matsuda, Yosei Nishibe, Misaki Tempo, Kimie Yoshitani, and Yoichi Azumi

**09:40 523 Polystyrene lightened concrete influence on the efficiency of acoustic barriers: Comparative model**

David Colorado Aranguren, Laura Abad Toribio, Ignacio Demaraa Castaeda, Francisco Javier Gabiola Ondarra, Marta Serrano Perez, and Ana Velasco Fernandez

**10:00 705 Nearfield sound insulation by using microperforated panels**

Zenzo Yamaguchi and Ichiro Yamagiwa

**10:40 784 Efficiency of the barrier with a wedge-shaped device composed of wells on the top plane**

Masaki Hasebe

**11:00 367 Noise reduction effect of barriers for low wind load at high-rise buildings adjacent to conventional railways**

Satoshi Ishikawa, Itaru Kato, Masaaki Hiroe, and Tetsuya Sakuma

**11:20 805 Barriers for noise mitigation: Pilot projects in Istanbul**

Aybike Ongel and Esad Ergin

**11:40 87 Propagation of sound around different noise barrier models using a novel three-dimensional scan based sound visualization technique**

Jasper Serraris

**12:00 636 Experiences with a classification scheme for open-plan offices in modelling and measurements**

Christian Nocke and Fabian Probst

**8.07 Psychoacoustics**

Nob Hill B

Chairs: Klaus Genuit and Wade Bray

**13:40 151 Dissimilarity based perceptual categories of underwater targets and related auditory features**

Chen Kean, Yang Lixue, and Sang Zhiming

**14:00 229 Investigation into the psychoacoustics of major and minor musical chords**

Gregory Goetchius

**14:20 707 The difference of perceived loudness of sounds between men and women**

Mariko Hamamura, Manami Aono, and Shin-ichiro Iwamiya

**14:40 737 Determination of speech levels of Japanese talkers focusing on room acoustic conditions**  
Hyo-Jin Lee and Shinichi Sakamoto

**15:00 824 Is the noise or the vibration more disturbing? Multimodal interaction investigation based on street sweepers**  
M. Ercan Altinsoy and Andreas Nicht

## 8.02 Psychological Effects of Noise

Nob Hill B

Chairs: Patricia Davies and Klaus Genuit

**15:40 307 Psychological effects in the context of environmental noise perception**  
Andre Fiebig

**16:00 875 MisMatch Negativity (MMN) in high and low noise sensitivity individuals**  
Kim White and Martijn Meeter

**16:20 361 Effect of variation in noise absorption in open-plan office: A field study with a cross-over design**  
Frans Davidsson and Aram Seddigh

**16:40 533 The effect of noise reduction measures on the perception of railway noise**  
Christian H. Kasess, Piotr Majdak, Holger Waubke, and Thomas Maly

## 16.08 Fitness Center Noise & Vibration Control

Nob Hill C

Chairs: Melinda Miller and William Byrick

**09:00 132 Mitigating the effects of heavy weight drops on building structures**  
Richard Sherren

**09:20 295 One manufacturer's search for an acoustically sound fitness flooring tile**  
Sharon Paley

**09:40 579 Measured vibration isolation performance of a spring isolated slab during heavy weight drops in a concrete building**  
David O. Forrest

**10:00 719 Effectively field testing the potential for noise and vibration impact from fitness activities**  
Erik Miller-Klein

**10:40 789 Comparing various fitness flooring assemblies using a tapping machine and heavy impact sources**  
Paul Gartenburg and Paul Downey

**11:00 847 Field acoustical measurement of heavy weight impacts associated with weight drops in fitness centers**  
John LoVerde, Wayland Dong, Matt Rashoff, Samantha Rawlings, and Richard H. Silva

**11:20 895 Impact noise control of health club equipment**  
Joseph M. Cuschieri

**11:40 764 Mitigation of gym noise and vibration in mixed-use buildings**  
Diego Hernandez and Ethan C. Salter

**18.02 Inverse Approaches in Vibro-Acoustic**

Nob Hill C

Chairs: Jeong-Guon Ih and W.K Jiang

- 13:40 189 Indirect force identification using strain sensor**  
Jiannan Yang, Takashi Yoshizawa, and Yasushi Takano
- 14:00 272 Location of rotating sound sources using the time-domain equivalent source method**  
Xiao-Zheng Zhang, Chuan-Xing Bi, Yong-Bin Zhang, and Liang Xu
- 14:20 790 Structure-borne sound characterization of structures in coupled conditions applying a time domain approach**  
Wolfgang Kropp and Goran Pavic
- 14:40 100 Localization of incoherent multiple sources using three-dimensional sound intensity array**  
Filip Franek, Jeong-Guon Ih, and Efren Fernandez Grande
- 15:00 266 Determination of plane-wave reflection coefficients from particle velocity measurements**  
Chuan-Xing Bi, Wang-Lin Wang, and Yong-Bin Zhang
- 15:40 879 A combined deconvolution approach to separate stationary and moving mono-frequency acoustic sources**  
Pinxi Mo and Weikang Jiang
- 16:00 117 Inverse estimation of sectional gas temperature in a duct having multiple temperature peaks**  
Jeong-Guon Ih and Tae-Kyoon Kim
- 16:20 292 A nearfield acoustic holography based on the mapping relationship between patterns on surfaces of structure and hologram**  
Hai-Jun Wu and Wei-Kang Jiang
- 16:40 342 Experimental condition for Operational Transfer Path Analysis**  
Junji Yoshida and Akinaru Inoue

**16.04 Lightweight Construction Noise Control**

Salon 1

Chairs: Jean-Luc Kouyoumji and Noah Schiller

- 09:00 201 Improvement of sound insulation performance of walls using autoclaved lightweight concrete blocks**  
Chan-Hoon Haan and Seong-Shin Hong
- 09:20 239 Junction characteristics for predicting acoustic performance of lightweight wood-based buildings**  
C. Guigou Carter and M. Villot
- 09:40 246 Extending EN 12354 sound insulation modelling to composed, light weight building systems**  
Eddy Gerretsen
- 10:00 546 Modeling and verification of perforated plate structure for high sound absorption at low frequency with extending parts behind holes into shallow air space**  
Teruo Iwase, Satoshi Sugie, Masahuki Abe, Hirohasu Kurono, Shinya Nishimura, Yasuaki Okada, and Koichi Yoshihisa
- 10:40 582 Comparing the effects on impact and airborne sound transmission of common fire-rated components in wood-frame, open-web truss, multi-family construction**  
William Bonnycastle and Matthew Golden

**11:00 848 Vibration response of lightweight building elements under structural excitation**  
Simon Bailhache and Michel Villot

**11:20 849 Predicting sound transmission loss of timber framed walls and floors using SEA, in "AcouBois" project of the French wood industry**  
Jean-Luc Kouyoumji and Catherine Guigou

**11:40 574 Stiffness and damping evaluation of elastomers in different setups**  
Asa Bolmsvik, Bertil Enquist and Andreas Linderholt

## Tutorial Lecture

Salon 1

**13:30 – 15:00 Modeling, Analysis and Control of High-Speed Precision Gear Dynamics**  
Teik C. Lim

## 7.04 Noise Mapping | Salon 1

Chairs: Charlie Zheng and Oya Keslin

**15:40 115 Quality assurance and harmonisation of noise mapping projects**  
Andreas R. Novak

**16:00 380 Noise mapping in Australia: Completed studies, goals and outcomes**  
Benjamin Hinze

**16:20 607 Airport noise mapping - A case study at Istanbul Sabiha Gokcen International Airport**  
Oya Keskin and Sevtap Yilmaz

**16:40 609 Influential factors and spatiotemporal patterns of environmental sound levels**  
Daniel J. Mennitt and Kurt M. Fristrup

**17:00 903 Russian standard regulating quality requirements and testing criteria of software for sound outdoor calculation**  
Ilya E. Tsukernikov, Igor L. Shubin, Leonid A. Tikhomirov, and Tatiana O. Nevenchannaya

**17:20 872 Noise mapping analysis to predict acoustic barriers along a new express highway in Sao Paulo, Brazil**  
Maria Luiza R. Belderrain, Mariene Benutti Giunta, Rafael Vaidotas, and Wanderley Montemurro

## 16.01 Building Noise Measurements & Modeling

Salon 2

Chairs: Greg Coudriet, Bruce Lachey, and Samir Gerges

**09:00 181 Characterization of diffusivity based on spherical array processing**  
Melanie Nolan, Eflen Fernandez-Grande, and Cheol-Ho Jeong

**09:20 331 Comparison of the acoustical performance of Mihrab design in mosques using computer simulation studies**  
Nazli Che Din, Zufar Adzahan, Asrul Sani Razak, Zunaibi Abdullah, Mohd Zamri Jusoh, and Mohamad Ngasri Dimon

**09:40 374 Measurements and FE-simulations of low frequency sound transmission and induced building vibrations from aircrafts**  
Karin Noren-Cosgriff, Finn Lovholt, Christian Madshus, and Arild Brekke

- 10:00 409 Balancing of thermal and acoustic insulation performances in building envelope design**  
Antonino Di Bella, Nicola Granzotto, Hagar Elarga, Giovanni Semprini, Luca Barbaresi, and Cosimo Marinosci
- 10:40 433 Investigating the impact of noise incidence angle on the sound insulation of a supply air window**  
Morten B. Hansen and Torben Tambo
- 11:00 568 Low frequency sound pressure field in small rooms in wooden buildings with dense and sparse joist floor spacing**  
Jorgen Olsson, Andreas Linderholt, and Kirsi Jarnero
- 11:20 575 Characterization of acoustic diffusion using refracto-vibrometry**  
Richard Jockett and Ben Piper
- 11:40 426 Field investigations of the sound insulation performance in a Brazilian public school building**  
Rafaella Estevao da Roaha, Alexandre Virginelli Maiorino, Lilian Lima Dias, Roberta Smiderle, and Stelamaris Rolla Bertoli
- 12:00 600 Controlling water pump facility noise through building design and noise control technology: A case study**  
Theodore C. Lindberg
- 13:40 610 Including the wall scattering coefficient in the diffusion model for building acoustics**  
C. Foy, J. Picaut, and V. Valeau
- 14:00 679 Prediction and control of occupant generated noise levels in open plan collaborative office spaces**  
Michael J. Brown
- 14:20 721 Acoustic measurement experiments to the orchestra shells in two multipurpose halls**  
Yang Fu, Xiang Yan, and Peng Wang
- 14:40 477 Development of high-sound-insulation double floor structure with Helmholtz resonators: Calculation based on two-particle system model and real-scale measurements**  
Yosuke Yasuda, Hidehisa Sekine, Kazuhiro Watanabe, Mitsuru Yabushita, and Hideki Horiuchi
- 15:00 483 An experimental study on correlation of vibration acceleration on floating floors with floor impact noise**  
Hong-Seok Yang, Seong-Bok Lee, and Young-Soo Chun

## 8.04 Soundscapes

Salon 3

Chairs: Brigitte Schultz-Fortkamp and Gregg Watts

- 09:00 37 Tranquility trails - Linking positive soundscapes for healthier cities**  
Greg Watts and Rob Pheasant
- 09:20 131 Fr-ag-me-nt-at-ion and interdisciplinary research framework**  
Frans Mossberg
- 09:40 297 Verisimilitude in soundscape design**  
Fernando J. Elizondo-Garza, Adrian Garcia Mederez, and Diego F. Ledezma-Ramirez
- 10:00 311 Cognition of soundscapes and other complex acoustic scenes**  
William J. Davies



- 10:40 212 Subjective speech intelligibility and soundscape perception of English, Polish, Arabic and Mandarin**  
Kivanc Kitapci and Laurent Galbrun
- 11:00 720 Assessing the relationships between soundscape and landscape in urban environment**  
Joo Young Hong and Jin Yong Jeon
- 11:20 543 Analysis and evaluation of soundscapes in urban public squares through questionnaires and sound quality metrics**  
Sercan Bahali, Nurgun Tamer-Bayazit, and Deyra Dakir Aydin
- 11:40 158 Soundscape design and mapping of water features used over road traffic noise**  
Francesca M.A. Calarco and Laurent Galbrun
- 12:00 226 Priority of the acoustic environment for earthquake victims: a survey of highway-side disaster-response public housing**  
Koji Nagahata and Yuta Okazaki
- 13:40 553 Sustainable soundscapes: A field study in the historical Surici area of Diyarbakir**  
Derya Cakir Aydin, Ersin Uysa, I and Y. Berivan Ozbudak Akca
- 14:00 572 Instrumental assessment of soundscapes using speech quality models**  
N. Cote, D. Attali, and J.P. Deparis
- 14:20 893 Developing an applied soundscape approach: Mapping the stakeholder engagement process in the city of Brighton and Hove, UK**  
Lisa Lavia, Jieling Xiao, Jian Kang, Matt Easteal, and Simon Bannister
- 14:40 810 Acoustic environments and their perception measured by the soundwalk method**  
Andre Fiebig
- 15:00 820 Soundscapes of digital morphogenesis in architecture which created from musical algorithm**  
Didem Acar and Nurgun Tamer Bayazit

## 2.04 Vehicle Noise

Salon 4

Chairs: Ming-Hung Lu and Jan Radosz

- 09:00 109 Mixed-mode signal detection of road vehicle vibration using Hilbert-Huang transform**  
Julien Lepine, Michael Sek, and Vincent Rouillard
- 09:20 143 Wavelet transform to index road vehicle vibration mixed mode signals**  
Julien Lepine, Vincent Rouillard, and Michael Sek
- 09:40 482 A methodology for evaluating structure-borne road noise prior to a development mule using direct force measured on a suspension rig**  
David P. Song, Dongwoo Min, Yeon June Kang, Munhwan Cho, Hyoung Gun Kim, and Kang Duck Ih
- 10:00 60 Vibroacoustic modeling of a trimmed truck cab in the mid frequency range**  
Y. Gerges, H.D. Hwang, K. Ege, L. Maxit, and C. Sandier
- 10:40 65 Cabin boom analysis to quantify structure-borne and air-borne sources**  
P.D. Jawale, A. B. Shewale, E. Ramachandran, and N.V. Karanth
- 11:00 104 Insight into brake squeal source mechanism considering kinematic nonlinearity and pad-disc separation**  
Osman Taha Sen and Rajendra Singh

- 11:20 337 The stability and transient response analysis in time-frequency domain of disc brake**  
Ke Shang, Xiandong Liu, Haixia Wang, and Yingchun Shan
- 11:40 63 Study and application of the structure-borne noise reduction in automotive vehicles by optimizing the panel ribs, damping, and sound packages**  
Ji Woo Yoo, Sang-Woo Lee, Francesca Ronzio, Theophane Courtois, and Jan Horak
- 12:00 4 Influence of the mounting spring on the sound of car horns**  
Jannis Klaus, Klaus Lange, and Georg-Peter Ostermeyer
- 13:40 680 A non-line-of-sight identification algorithm in automatic microphone localization for experimental acoustic modal analysis**  
Giampiero Accardo, Bram Cornelis, Karl Janssens, Bart Peeters, Paolo Chiariotti, and Milena Martarelli
- 14:00 150 Acoustic characteristics and design refinement in electric vehicle development**  
Ming Une Jen and Ming-Hung Lu
- 14:20 830 Perceived sound quality of additional alert sounds of an electric vehicle**  
Sneha Singh, Sarah R. Payne, James B. Mackrill, and Paul A. Jennings
- 14:40 376 Interior acoustics of electric vehicles and its influence on the drivers' speed estimation**  
Martin Czuka, Claus Aichinger, Rienhard Wehr, Andreas Fuchs, and Marco Conter
- 15:00 562 Infrasonic noise effect on psychomotor performance of urban bus drivers**  
Jan Radosz
- 15:40 881 Vibration and sound radiation analysis of vehicle axle systems using an integrated approach**  
Yawen Wang, Dong Guo, Srkiumar Gopalakrishana, and Teik C. Lim
- 16:00 5 Towards the assessment of the noise level time-history for ground based transportation**  
Roland Schuster, Arne Henning, and Claus Wagner
- 16:20 343 Influence of unexpected engine start sound of hybrid vehicle in cabin — Comparison between Japanese and German drivers**  
Toru Ueno, Junji Yoshida, and Hugo Fastl
- 16:40 392 Experimental study of sunroof buffeting in a simplified hatchback vehicle model**  
Keiichiro Iida and Yoshimitsu Hashizume

## 11.05 Ship and Offshore Noise and Vibration

Salon 5

Chairs: Mike Bahtiarian and James Reyff

- 09:00 93 Noise prediction of in-design FPSO (Floating Production Storage and Offloading)**  
Fangsen Cui and Hui Zheng
- 09:20 285 Medium speed Diesel engines low frequency noise characteristic analysis**  
Donchool Lee and Ronald D. Barro
- 09:40 444 Noise control aboard a recreational craft powered by an outboard motor: Measurement protocol and systematic errors**  
Leandro Rodino and Florent Masson
- 10:00 955 The application of impedance analysis method in dynamic response analysis of ship**  
Fu-zhen Pang, Hong-bao Song, Xue-ren Wang, and Chuang Wu

- 10:40 1005 A shock simulator for naval gun back movement**  
Yu-Xuan Huang, Jian-Jun Yao, Shuo Chen, and Le Zhang
- 11:00 11 Multi-relaxation-time (MRT) lattice Boltzmann model for plane sound wave propagation**  
Zhi-Kai Wang, Dong-Yan Shi, A-Man Zhang, and Hong-Qun Li
- 11:20 17 Investigation of streamwise oscillating characteristics of a near-wall circular cylinder**  
Hong-Qun Li, Dong-yan Shi, Zhi-Kai Wang, and Hong-Xu Ai
- 11:40 1010 A study on structure-borne noise isolation by using AVM for offshore accommodation**  
Chan-Hui Lee, Sung-Hun Kim, and Jong-Hoon Jeon
- 12:00 293 Acoustical contribution analysis for multiple acoustic sources based on phase conjugation method**  
Liu Song, Dou Dong Yang, and Li Sheng
- 13:40 692 Study on the sample size optimization for ship acoustic fault identification**  
Linke Zhang, Na Wei, Jiewei Du, and Jianwue Zhao
- 14:00 18 Research on the acoustic radiation characteristics of the submarine ship structure**  
Fu-zhen Pang, Hong-bao Song, Xue-ren Wang, and Chaung Wu
- 14:20 423 R/V SIKULIAQ: First quiet ice breaking research vessel**  
Michael Bahtiarian

## 11.07 Turbomachinery Noise

Salon 5

Chair: Mike Jonson

- 15:40 578 Experimental and numerical investigation of the sound field from a centrifugal blower**  
Jiandong Chen, Beibei Sun, Jianrun Zhang, Fei Xue, and Xin Liu
- 16:00 211 Turbofan broadband noise predictions using a 3D ZDES rotor blade simulation**  
Cyril Polacsek, Virginie Bonneau, Lionel Castillon, Julien Marty, and Mathieu Gruber
- 16:20 214 A numerical simulation method of shock-wave propagation in turbofan intakes**  
Johan Thisse, Cyril Polacsek, Serge Lewy, and Julien Mayeur
- 16:40 42 Experimental validation of small piezoelectric end sensors for unsteady force measurement**  
Margalit Z. Goldschmidt, Michael Jonson, and George Lesieutre
- 17:00 61 Aerodynamic noise prediction of a fan coil cassette unit using LBM**  
Mohammed Meskine, Min-Suk Kim, Franck Perot, Francesco Polidoro, Yann Portier, Francette Fournier, and Pierre Jean Vialle
- 17:20 306 Turbo-compressor and piping noise assessment using particle velocity based sound emission methods**  
M. Guiot, D. Fernandez Comesana, M. Korbasiewicz, and G. Carrillo Pousa

**14.01 Industrial Mufflers**

Salon 6

Chairs: Dan Kato and Tim Wu

- 09:00 595 Mitigation of reciprocating engine exhaust noise using resonators**  
Elden F. Ray and David M. Jones
- 09:20 160 Low frequency noise investigation and solution for a large diesel engine factory in the city**  
Zengxin Gao, Sami Oksanen, Kari Saine, Jouni Hartikainen, and Roy Hjort
- 09:40 865 Testing issues with breakout noise of mufflers**  
Daniel Kato, Gong Cheng, Keyu Chen, D.W. Herrin, and Andy Seybert
- 10:00 953 Validation of the reciprocal work identity method with AML for large silencer analysis**  
K. Ruan, T.W. Wu, and D.W. Herin

**18.03 Sound Visualization and Manipulation | Salon 6**

Chairs: Jung-Woo Choi and Gunnar Hellman

- 10:40 555 Acoustic study and visualization of the Dumont Dune booming sound phenomena, California, USA**  
Gunnar Heilmann, Magdalena Boeck, and Benjamin Vonrhein
- 11:00 566 Correlation of high channel count beamforming measurement of a car in a wind tunnel using CLEAN-SC**  
Dirk Dobler, Christoph Puhle, and Gunnar Heilmann
- 11:20 733 Using a real-time acoustic beamformer for sound visualization**  
JunGoo Kang, Youngkey Kim, Kurt Veggeberg, Myunghan Lee, and Kang-Duck Ih
- 11:40 254 FPGA implementation of a real-time filter and sum beamformer for acoustic antenna**  
A. Netti, G. Diodati, F. Camastra, and V. Quaranta
- 12:00 580 The equivalent source method as a sparse signal reconstruction**  
Efren Fernandez-Grande and Angeliki Xenaki
- 13:40 441 Simulation of sound fields radiated by finite-size sources in room environments by using equivalent source models: Three-dimensional validation**  
Yangfan Liu and J. Stuart Bolton
- 14:00 736 Noise source localization in jet discharged by a converging-diverging nozzle through NAH**  
Vikas N. Bhargav, Nitesh Anerao, and K. Srinivasan
- 14:20 133 Visualization of small design modifications using differential beamforming**  
Steffen Schmidt and Dirk Dobler
- 14:40 887 Generation of personal sound zones in the interior and exterior of automotive vehicles**  
Jung-Woo Choi, Jin-Seok Hong, and Yang-Hann Kim
- 15:40 930 The concept of "Spatial Equalizer" and its applications**  
Yang-Hann Kim, Dae-Hoon Seo, and Jung-Woo Choi
- 16:00 983 The influences of the bright zone objective function on the sound field control**  
Ho-Min Ryu, Ki-Hyun Kim, Jae-Hu Ryu, and Se-Myung Wang

**Plenary Session**

Salon 7

**08:00–09:00** **New Roles of Automotive NVH Engineers in an Era of Change**  
Kang-Duck Ih

**Poster Session: Transportation Related | Salon 8**

13:40–15:20

- Abstract 68** **Effects of aircraft noise on children’s learning: ACRP 02-47 study design**  
Mary Ellen Eagan, Christopher Waite, Gary Evans, and Charlotte Clark
- Abstract 91** **Identification of noise sources and its counter-measures for a metro system: A case study of Brown Line in Taipei**  
Rong-Juin Shyu, Tai-Shan Lin, Hsiu-Lan Hu, Tsung-Kuei Wang, and Pin-Jen Yen
- Abstract 116** **Analysis of the noise measurement of a certain residential area in Zhuozhou affected by Beijing-Guangzhou high-speed railway**  
Quan Li, Yan Xiang, Wang Jianguhua, and Su Jing
- Abstract 118** **Scale-model experiment design of simulating environment noise impacted by the steel bridge railroad**  
Li Quan, Yan Xiang, Xiangdong Zhu, and Yiwei Sun
- Abstract 439** **Tire-pavement noise characteristics by traffic level and vehicle speed using CADNA-A software**  
Deok-Soon An, Byung-Sik Ohm, Soo-Ahn, Kwon, and Yong-Joo Kim
- Abstract 492** **The development of an ‘edge-effect’ suppression device for soundproof barriers**  
Shimpei Yatsunami, Masakazu Kiyama, Yasushi Hoshino, Shogo Kimoto, Yasuhito Kawai, and Kunihiko Araki
- Abstract 581** **Noise reduction technologies to facilitate off-hour deliveries in urban areas**  
Jeffrey Wojtowicz, Shama Campbell, Xiaokun Wang, Jose Holguin-Veras, Yiwei Zhou, and Robert Goevaers
- Abstract 738** **Noise characteristics between tire and surface of porous asphalt pavement**  
Byung-Sik Ohm, Deok-Soon An, Yong-Joo Kim, and Hyeon-Jang Son

**Poster Session: Building & Vehicle Related**

Salon 8

15:40-17:20

- Abstract 801** **Design and construction of hemi-anechoic chamber with two-wheel drive NVH chassis dynamometer for electric vehicles**  
Won Seon Yang, Ji Won Kim, and Sang Kyu Park
- Abstract 108** **Effect of perforated ceiling structure on floor impact sound**  
Jong-Kwan Ryu and Kyoung-Ho Kim
- Abstract 474** **Design of small-size music making studio in the residential building**  
Quan Li, Xiang Yan, Xuguang Wang, and Yang Fu
- Abstract 488** **Investigating designable factors on floor plans of apartment buildings and their correlation with floor vibration characteristics**  
Seong-Bok Lee, Hong-Seok Yang, Young-Soo Chun, and Bum-Sik Lee
- Abstract 516** **Research on sound absorbing mechanism and the preparation of new backing material for ultrasound transducers**  
Guofeng Bai, Xiujuan Zhang, Fusheng Sui, and Jun Yang

**Abstract 594 Acoustic behaviour of composites from lightweight aggregates**

T.V. Eequerdo, J. Carbajo, J. Ramis, A.V. Nadal-Gisbert, and F.D. Denia

**Abstract 835 Numerical sensitivity analysis of reactive perforated muffler using factorial design method**

Gabriela Cristina Candido da Silva and Maria Alzira de Araujo Nunes

**19.03 Environmental Noise Management | Salon 10**

Chairs: Douglas Manvell and Grace Kwok

- 09:00 88 Development and policy analysis of an effective noise management strategy for Port Metro Vancouver**  
Gary C. Olszewski and Julia Ren
- 09:20 356 From noise monitoring to noise management: A better way to deal with noise issues**  
Douglas Manvell
- 09:40 387 The Port Authority of New York and New Jersey noise management program**  
Jami M. Bjornstad and Daniel Webber
- 10:00 32 Construction vibration monitoring for sensitive facilities**  
Steven B. Lank and Blong Xiong
- 10:40 312 Effect of noise generated by construction sites on birds**  
Pasquale Bottalico, Dorina Spoglianti, Carlo A. Bertetti, and Marco Falossi
- 11:00 255 Comparing air blast noise prediction using the OSMRE regression analysis approach, ISO 9613-2, and simple geometric spreading**  
Scott Noel, Tricia Pellerin, and Erik Kalapinski

**1.01 Consumer Products**

Salon 10

Chairs: Kevin Herreman and MG Prasad

- 13:40 85 Sound preference development and correlation to service incident rate**  
Terry Hardesty, Eric Frank, Todd Freeman, and Gabriella Cerrato
- 14:00 344 Factor analysis of noise for drum type washing machine using operational TPA**  
Rei Yamashita, Junji Yoshida, Tomohiro Fujii, and Akihiro Hosokawa
- 14:20 884 Tiger team review of a potential new noise control product**  
Mark C. Storm
- 14:40 688 It is time to modify the symbol for decibel (dB) so that it is unambiguous**  
Robert D. Hellweg Jr. and Charles Oppenheimer

**7.03 Industrial Noise**

Salon 10

Chair: Henry Scarton

- 15:40 666 Jackhammer chisel noise control**  
Henry A. Scarton and Kyle R. Wilt
- 16:00 563 Noise optimization and planning of alternatives within industrial sites**  
Antonio Notario

**16:40 1001 Benchmark indicators for industrial noise emission**

T.J.M. van Diepen and J.H. Gramme

**17:00 621 LNG export terminals: Dominant noise source estimate and mitigation measures**

Ankit Chadha and Prakash Ramdoss

**5.02 Active Noise Control**

Salon 11

Chairs: Youngjin Park, Jie Duan and Mingfeng Li

**09:00 25 Reduction of broadband noise in vehicles by means of active feedforward control**

Malte Misol, Thomas Haase, and Hans Peter Monner

**09:20 152 Experimental study of control position determination for active noise control of residential slit openings**

Ken Anai

**09:40 221 In-situ adaptive speech enhancement using directional microphone applied to magnetic resonance imaging**

Guohua Sun, Mingfeng Li, Brent W. Rudd, Teik C. Lim, Jeffrey Osterhage, Elizabeth M. Fugate, and Jine-Huei Lee

**10:00 358 Experimental assessment of active electroacoustic absorbers for broadband room modes damping**

Herve Lissek, Sami Karkar, Etienne Rivet, Veronique Adam, Torje Thorse, Quentin Berthet, Antoine Pittet, David Strobino, Alain Roux, and Christian Martin

**10:40 420 Active structural acoustic control of plates with different boundary conditions using a weighted sum of spatial gradients**

Yin Cao, Scott D. Sommerfeldt, and Jonathan D. Blotter

**11:00 455 Hybrid active noise barrier with sound masking (Experiment for verifying the noise attenuation performance in an office room and evaluation of maskers by listening experiments)**

Xun Wang, Yosuke Koba, Satoshi Ishikawa, and Shinya Kijimoto

**11:20 497 Fundamental study on active noise control with audio-spot for minimum area using parametric loudspeaker**

Daisuke Ikefuji, Tadashi Matsui, Masato Nakayama, Takanobu Nishiura, and Yoichi Yamashita

**11:40 386 Error analysis of active noise control system for MRI noise**

Nokhaeng Lee and Youngjin Park

**12:00 499 Narrowband active noise control using variable step-size FXLMS algorithms**

Yegui Xiao, Yaping Ma, and Boyan Huang

**13:40 506 Comparative study of cone-shaped versus flat-panel speakers for active noise control of multi-tonal signals in open windows**

Stefano Fasciani, Jianjun He, Lam Bhan, Tatsuya Murao, and Woon-Seng Gan

**14:00 557 Effects of reflection surfaces on the performance of feedback active noise control systems**

Zhibin Lin, Xiaojun Qiu, and Jie Pan

**14:20 686 Evaluation of a large scale active control system for transformer noise control**

Jinpei Xue, Xiaofan Huang, Jing Lu, Shuping Wang, Jiancheng Tao, and Kai Chen

**14:40 729 An experimental investigating on the road traffic noise signals with general acoustical sensors and a vibration sensor on glass pane in the window of high-rise buildings**

Jiping Zhang, Jie Jiang, Lei Zhang, Dian Wu, Li He, Wenbo Xiong, Hui Ming, Jia Chen, Lijiang Cao, and Hong Pan

- 15:00 735 A numerical study of virtual sound barrier with virtual sensors**  
Haishan Zou, Xiaojun Qiu, and Ningrong Li
- 15:40 771 Virtual sensing at low computational cost for active noise control**  
R. Quintana, L. Piroddi, and D. Patino
- 16:00 772 Performance analysis of active noise control of transformer noise using wideband feedforward control algorithm**  
Jing Lu, Jinpei Xue, and Haishan Zou
- 16:20 890 A novel variable step-size filtered-x least mean square algorithm for continually varying noise**  
Amrita Puri, Subodh V. Modak, and Kshitij Gupta
- 16:40 914 The noise reduction of floor impact sound using active noise control**  
Dong-ki Min, Gyung-min Toh, Jun-hong Park, and Sang-won Nam

## 5.01 Absorption Materials and Treatments

Salon 12

Chairs: Gordon Ebbitt, Nouredine Atalla and Olivier Doutres

- 09:00 66 Control strategies for a distributed active acoustic skin**  
Sami Karkar, Herve Lissek, Manuel Collet, Morvan Ouisse, and Marc Versaevel
- 09:20 196 A hybrid Finite Element-Transfer Matrix method for the modeling of vibroacoustic systems with attached noise control treatment**  
Luca Alimonti and Nouredine Atalla
- 09:40 317 Assessing sound absorption coefficient under a synthesized diffuse acoustic field: Effect of the sample size and nature**  
Olivier Robin, Celse Kafui Amedin, Alain Berry, Nouredine Atalla, Olivier Doutres, and Franck Sgard
- 10:00 576 A method to control the lateral boundary condition effects in the characterization of acoustic materials in an impedance tube**  
Thomas Dupont, Kevin Verdiere, Philippe Leclair, and Raymond Panneton
- 10:40 445 Predictions of the sound transmission loss of multi-layered structures using statistical energy analysis while considering air-borne and structure-borne insertion loss**  
Hyeong Rae Lee, Ju Hyun Jeon, Je Heuck Park, and Yeon June Kang
- 11:00 464 Modelling and simulation of membrane sound absorbers with negative stiffness**  
Junjuan Zhao, Xianhui Li, Bin Zhang, Xiaoling Gai and Yueyue Wang
- 11:20 590 Impedance education in the presence of grazing flow based on an analytical multiport model**  
Herve Denayer, Wim De Roeck, and Wim Desmet
- 11:40 855 Distributed array of particle impact dampers as a removable noise control treatment in metal fabrication**  
Fabio Menegatti de Melo, Ethan Bisgaard, and Kenneth A. Cunefare
- 13:40 135 Sound absorption of egg boxes and trays**  
Antonio P.O. Carvalho and Sonia C.P. Vieira



- 14:00 278 Experimental study on sound absorption performance of microperforated panel with membrane cell**  
Xiao-Ling Gai, Xian-Hui Li, Tao Xing, Bin Zhang, and Jun-Juan Zhao
- 14:20 324 Determination through an inverse method of the acoustic impedance and the propagation constant for some natural fibers**  
Umberto Berardi and Gino Iannace
- 14:40 357 A semi-empirical approach to link macroscopic parameters to microstructure of fibrous materials**  
Pierre Kerdudou, Jean-Baptiste Chene, Gary Jacquus, Camille Perrot, Sylvain Berger, and Pierre Leroy
- 15:00 359 Sound absorption and additive manufacturing**  
Foteini Setaki, Martin Tenpierik, Arjan van Timmeren, and Michela Turrin
- 15:40 429 Microperforated films as duct liners**  
Nicholas N. Kim and J. Stuart Bolton
- 16:00 450 Targeted energy transfer between a nonlinear membrane and several acoustic degrees-of-freedom of 3D acoustic cavity**  
Jianwang Shao and Xian Wu
- 16:20 489 The role of pore structure in sound absorption performance of lime based plasters**  
Isin Meric Nursal, Ayse Tavukcuoglu, and Mehmet Caliskan
- 16:40 493 Parameter calculation of sound absorption material by inversion method in pulse tube**  
Hong Hou, Yun-ke Huang, and Jian-hua Yang
- 17:00 529 Brief review of micro-perforated sound absorbers in architectural acoustics**  
Christian Nocke, Catja Hilge, and Jean-Marc Scherrer
- 17:20 684 A study on alternative methods to measure and predict acoustical properties of construction materials in Colombia**  
Hector Garcia-Mayen, Diana M. Garza, Luis A. Tafur, and Antonio Escamilla

## 18.05 Aero-Acoustic Experiments

Salon 13

Chairs: Karl Washburn

- 09:00 350 Characterization of low noise technologies applied to a full scale fuselage mounted nose landing gear**  
Eleonora Neri, John Kennedy, Gareth J. Bennett, Ciaran O'Reilly, Jeremy Dahan, Gunilla Efraimsson, Marco Esposito, Massimiliano Bruno, Triziana Taveri, Antonello Bianco, Francesco Amoroso, and Massimiliano Di Giulio
- 09:20 351 Aeroacoustic source separation on a full scale nose landing gear featuring combinations of low noise technologies**  
Eleonora Neri, John Kennedy, Petr Eret, and Gareth J. Bennett
- 09:40 98 Acoustic characteristic of a bat inspired membrane wing with adaptive compliances**  
Zhenbo Lu, Quoc Viet Nguyen, Woei-Leong Chang, and Marco Debiasi
- 10:00 363 Wind noise generated by facade elements on buildings: A simple measurement method and cases studies**  
Thibaut Blinet, Pierre Kerdudou, Jean-Baptiste Chene, and Gary Jacquus

- 10:40 551 Study on design and prototyping of small low noise wind tunnel**  
Yuta Kato and Gaku Minorikawa
- 11:00 740 Sound source localization in impinging jet using planar NAH**  
Nitesh Anerao, Vikas Bhargav, and K. Srinivasan
- 11:20 900 Valveless standing wave pump with saw-tooth channeled rectifying device**  
Sonu K. Thomas and T.M. Muruganandam
- 11:40 390 Experimental studies on acoustics of corrugated tubes**  
B. Rajavel and M.G. Prasad
- 12:00 999 Non-stationary analysis of noise from a subsonic fluidic jet**  
Tyler Schembri, Anthony Zander, Richard Kelso, and Paul Medwell

## 18.06 Vibration and Vibro-Acoustic Experiments

Salon 13

Chairs: Carl Howard and Jong-Hak Lee

- 13:40 250 Determination of the bearing quality by means of vibroacoustic response**  
Stanislav Ziaran, Milos Musil, Ondrej Chlebo, and Peter Solek
- 14:00 853 System-level vibration testing of physical hardware using real-time hybrid substructuring**  
Rui M. Botelho, Joseph A. Franco, and Richard E. Christenson
- 14:20 125 Impact of acoustic standing waves on structural responses**  
Ali R. Kolaini
- 14:40 162 High-speed optical digital holography, contactless and full field metrological tool for vibroacoustics applications**  
Julien Poittevin, Pascal Picart, Francois Gautier, and Charles Pezerat
- 15:00 58 Practical and controlled laboratory vibration experiments that demonstrate the impulsive response of multi-staged clutch dampers**  
Michael D. Krak and Rajendra Singh
- 15:40 436 Analysis and improvement of spacecraft gyro sensor data with sampling mismatch**  
Shi-Hwan Oh
- 16:00 525 Evaluation of the digital image correlation method for the measurement of vibration mode shapes**  
M.F. Mat Tahir, Stephen J. Walsh, and Daneil J. O'Boy
- 16:20 756 Development of matching layer for ultrasonic wireless power transmitter**  
Gunn Hwang, WooSub Youm, and Sung Q Lee
- 16:40 956 Acoustic noise durability verification procedure for an external-mounted equipment on an aircraft fighter**  
Jong-Hak Lee, Yu-Kyoung Lee, Young-Sik Kang, Ji-Ho Choi, and Dong-Seok Kang
- 17:00 985 Observation and analysis of the vibration and displacement signature of defective bearings due to various speeds and loads**  
Alireza-Moazen Ahmadi and Carl Howard

**6.02 Vibration of Structures**

Salon 14

Chairs: Wen Li, Fabio Semperlotti, Zhidon Zhang and John Wang

- 09:00 897** **Extraction and linearization of nonlinear systems based on frequency response functions**  
Xin Liu, Beibei Sun, Jiandong Chen, Renqiang Jiao, and Fei Xue
- 09:20 84** **Design review of temporary attachment for comprehensive vibration assessment program of APR1400**  
Byeong-Wook Noh, Dong-Wa Lee, and Do-Koung Ko
- 09:40 101** **Natural frequencies of clamped and simply-supported beam carrying concentrated masses with rotary inertia**  
Longxin Zhen, Aijun An, and Xiaolei Teng
- 10:00 177** **Free vibration analysis of coupled open conical-cylindrical shells with arbitrary boundary conditions**  
Yun-Ke Zhao, Dong-Yan Shi, Qing-Shan Wang, and Huan Meng
- 10:40 191** **Analysis of dynamic response of thin-walled structure subjected by thermal-acoustic loading**  
Shun-Ming Li, Xiao-Hong Chen, Saho-Jiang Lai, and Yi-Yong Li
- 11:00 205** **Stochastic evaluation of floor slab vibrations due to human walking**  
Keiji Masuda, Masanao Nakayama, and Toshiyuki Ogawa
- 11:20 253** **Modeling, testing and designing low frequency impact isolation solutions for building structures with fitness centers above grade**  
Norman Varney
- 11:40 178** **Shock resistance simulation in time domain and experiment study for the hung condenser**  
Qian Liang, Dong-yan Shi, Qing-shan Wang, and Tao Zhang
- 12:00 267** **Contribution of inerters to the vertical dynamics of electric vehicles with suspended in-wheel motors**  
Zhi-Chao Hou, Wei Tong, and Shi-Peng Bai
- 13:40 348** **Study on vibration and noise of high speed diesel engine excited by gear system**  
Renke Li, Yepeng Cao, and Liqi Yan
- 14:00 405** **Numerical modelling and experimental determination of vibration characteristics of cylindrical shell with nonuniform stiffeners**  
Meixia Chen, Kun Xie, Naiqi Deng, and Kun Xu
- 14:20 432** **Modeling tire non-uniformity and its impact at low and high speeds**  
Daniel P. Pugliese, Argemiro Luis de Aragao Costa, and Jose Roberto de Franca Arruda
- 14:40 463** **Vibration response prediction of a high speed flight vehicle considering acoustic and rocket motor excitation**  
Jin-Hyeong Kim, Seoryong Park, Wonjong Eun, Sangjoon Shin, and Soo-gab Lee
- 15:00 476** **Non-stationary vibration power: Definition and application to a model miniature airplane**  
YongHwa Heo and Kwang-joon Kim
- 15:40 478** **Dynamic modeling and vibration measurement of power transmission line**  
Moon K. Kwak, Ji-Hwan Shin, Seungi-Ki Kim, Min-Sup Choi, and Jan R. Koo

- 16:00 487 Seismic response analysis of nuclear reactor internals**  
Jong-beom Park, No-Cheol Park, and Woo-Jin Roh
- 16:20 496 Effective method for identifying dynamic characteristics of APR 1400 nuclear reactor internals in experiment and finite element analysis**  
Sang-Jeong Lee, Jong-Beom Park, Youngin Choi, No-Cheol Park, Young-Pil Park, Jinsung Kim, and Woo-Jin Roh
- 16:40 552 Characterisation of sources and transmission of structure-borne sound by a reception plate method**  
Barry Gibbs, Carl Hopkins, and Kevin Lai
- 17:00 558 Numerical analysis on the vibration characteristics of ultra large container carrier with a novel mobile deckhouse structure**  
Hong-il Im, Do-Hyung Lee, Dae-Seung Cho, Dong-Sup Lee, and Heung-Kyu Jang
- 17:20 564 Vibration analysis of a floating platform for an offshore wind turbine**  
Joong Hyeok Lee, Jin Ho Ahn, Joon Ho Byeon, and Seockhyun Kim

## 9.01 Analytic Modeling

Salon 15

Chairs: James Thompson and Wen Li

- 09:00 550 Simulation of airborne paths using frequency based substructuring**  
Rui He, Limin Zhou, and David W. Herrin
- 09:20 974 Study on driving point power flow as power dissipation in discrete vibratory systems**  
Akira Inoue and Yosuke Tanabe
- 09:40 105 An analytical study of the mode-coupling effect on the instability of friction induced vibrations to guide design of a squeak test apparatus**  
Gil-Jun Lee, Jay Kim, and Kichang Kim
- 10:00 556 Applications of airborne path frequency based substructuring**  
Rui He and David W. Herrin
- 10:40: 859 Acoustic streaming around a spherical microparticle/cell under ultrasonic wave excitation**  
Zhongzheng Liu and Yong-Joe Kim
- 11:00 372 Blind separation of single-source multi-reflected signals in a convex polygonal room**  
Hirofumi Sasaki, Fumio Sasaki, and Michio Yamada
- 11:20 681 Research and application of acoustical modeling of power plant**  
Hong-Bing Su, Cong-Shuang Jiang, Bo Feng, Rui Ma, and Dan-Qun Fang

**9.02 Acoustic and Noise Measurements**

Salon 15

Chairs: Werner Talash and Gilles Daigle

- 13:40 129 Sound pulse generation using the post-processing inverse filter**  
Yang Dai, Jian-Hua Yang, and Hong Hou
- 14:00 159 A proposed technique for measuring and comparing crowd noise from sporting events**  
Andrew R. Barnard
- 14:20 231 Sound localization on the median plane based on simulated-binaural room impulse responses**  
Taku Yoshimura, Yuto Konishi, Daisuke Ikefuji, Masato Nakayama, and Takanobu Nishiura
- 14:40 234 Reproduction of human-phonatory radiation characteristic for continuous speech**  
Taku Yoshimura, Naoki Yoshimoto, Daisuke Ikefuji, Masato Nakayama, and Takanobu Nishiura
- 15:00 235 Acoustic-based surveillance system based on emergency sound detection with three microphones**  
Tomoyuki Mizuno, Kohei Hayashida, Masato Nakayama, and Takanobu Nishiura
- 15:40 251 Acoustic particle velocity for fault detection of rotating machinery using tachless order analysis**  
G. Carrillo Pousa, D. Fernandez Comesana, and J. Wild
- 16:00 885 Simple estimation of absorption coefficient of porous materials in tube-based measurement under constraint/gapped edge conditions**  
Naohisa Inoue and Tetsuya Sakuma
- 16:20 28 Experimental investigation into noise induced by low speed cavity flow**  
Xiao-Jina Zhao, Peng Fei Li, and Lei Zhao
- 16:40 122 Comparison of acoustic source localization methods in time domain using sparsity constraints**  
Thomas Padois, Franck Sgard, Olivier Doutres, and Alain Berry
- 17:00 530 The equivalent reverberation time for same definition in the near field of a semi-diffuse sound field**  
Uwe Stephenson



# TECHNICAL PROGRAM OVERVIEW | TUESDAY

ROOM	08:00	08:30	08:40	09:00	09:20	09:40	10:00	10:20	10:40	11:00	11:20	11:40	12:00	12:20	12:40	13:00
Nob Hill A				2.02 Tire Noise and Quieter Pavements												
Nob Hill B				18.07 Virtual Acoustics Simulations												
Nob Hill C				3.01 Aircraft												
Nob Hill D				2.01 Railway Vehicle Noise												
Salon 1				15.01 Vibroacoustics of Lightweight Composite Panels						17.05 Underwater Noise from Construction						
Salon 2				7.01 Noise & Vibration Control in Buildings												
Salon 3				8.03 Sound Quality												
Salon 4				11.06 Benchmark for Numerical Wind Noise Prediction												
Salon 5				9.03 Numerical Modeling												
Salon 6				5.04 Mufflers and Silencers												
Salon 7	Plenary Session															
Salon 8																
Salon 9	Exhibit Hall Open															
Salon 10				7.02 Community Noise												
Salon 11				6.01 Active Vibration Control												
Salon 12				5.01 Absorption Materials and Treatments												
Salon 13				8.01 Impact of Noise on Health												
Salon 14				6.02 Vibration of Structures						6.03 Structural Acoustics						
Salon 15				9.02 Acoustic and Noise Measurements												

STUDENT LUNCH

13:20	13:40	14:00	14:20	14:40	15:00	15:20	15:40	16:00	16:20	16:40	17:00	17:20	17:40	18:00	20:00		
2.02 Tire Noise and Quieter Pavements																	
18.07 Virtual Acoustics Simulations																	
3.02 Airports																	
High-Speed Rail Noise & Vibration							12.01 Ground-borne Noise and Vibration Mitigation for Transit Systems										
Rayleigh Lecture							11.03 Renewable Energy Noise Control Technologies										
7.01 Noise & Vibration Control in Buildings																	
8.03 Sound Quality							11.01 IT Noise and Vibration			19.02 Standards							
17.01 Low Frequency Noise - Impact and Control							Young Professionals Workshop										
18.01 Numerical Methods in Vibro-Acoustics																	
5.04 Mufflers and Silencers																	
Poster Session																	
Poster Session																	
21.01 Student Presentation Competition													17.03 Differences in Noise-Exposure Response Function				
5.02 Active Noise Control							16.06 HVAC & Building Systems Noise										
17.04 Psychological Evaluation of Noise in Daily Life							14.02 Acoustic Meta Materials and Phononic Crystals										
8.05 Worker Noise Exposure and Hearing Conservation																	
6.03 Structural Acoustics							15.02 Vibration and Acoustic/Elastic Wave										
9.02 Acoustic and Noise Measurements																	



# TECHNICAL PROGRAM OVERVIEW | TUESDAY DETAIL

## Tuesday, 11 August

### 2.02 Tire Noise and Quieter Pavements

Hill A

Chairs: Tyler Dare, Dana Lodico, John Hencken, and Ulf Sandberg

- 09:00 791 Temperature influence on the tire/road noise evaluated by the drum method**  
Piotr Mioduszeowski, Jerzy Ejsmont, Stanislaw Taryma, and Ryszard Wozniak
- 09:20 434 The developmnt of temperature normalization procedures for AASHTO TP 76, Measurement of Tire/Pavement Noise Using the On-Board Sound Intensity (OBSI) Method**  
Dana M. Lodico
- 09:40 965 Standardized corrections for temperature influence on tire/road noise**  
Ulf Sandberg
- 10:00 972 Speed dependency of temperature effects on tyre/road noise measurements**  
Erik Buhlmann, Ulf Sandberg, and Piotr Mioduszeowski
- 10:40 281 Influence of test conditions on tyre/road noise measured by the CPX method**  
Truls Berge and Frode Haukland
- 11:00 107 The effect of tire aging on acoustic performance of CPX reference tires**  
Beata Swieczko-Zurek, Jerzy Ejsmont, Piotr Mioduszeowski, Grzegorz Ronowski, and Stanislaw Taryma
- 11:20 305 Influence of car tyre wear and ageing on the noise emission: A pilot study**  
Jens Oddershede and Jorgen Kragh
- 11:40 745 RONDA open frame CPX trailer — Results of first trials**  
Renzo Tonin, Michael Chung, and Michael Gange
- 12:00 435 A framework for selection of functional asphalt overlays using tire/pavement noise**  
John Hencken, Edwin Haas, Michael Tulanowski, and Thomas Bennert
- 13:40 167 Conclusion of the long-term evaluation of open-grade asphalt for the reduction of traffic noise: Interstate 80 (I-80) Davis Project**  
Carrie Janello and Paul Donovan
- 14:00 717 Comparative assessment of low noise asphalt pavements**  
James McIntosh, Marc Buret, and Cassandra Simpson
- 14:20 966 Reduction of noise and rolling resistance by horizontal grinding of asphalt pavements**  
Ulf Sandberg and Piotr Mioduszeowski
- 14:40 320 Thin overlay mixes for highway noise mitigation**  
Manuel Trevino
- 15:00 973 A study on the tire/road noise measurement survey about some concrete pavements and the dense asphalt pavement**  
Eiji Noguchi, Hisho Mori, Motoomi Yoshida, Tomotaka Ueta, Kenichi Ishikawa, Shirou Kabshima, Takayuki Daimoto, and Hiroshi Miyazaki

- 15:40 982 A study on the frequency characteristic of tire/road noise about concrete pavements, composite pavements and the dense asphalt pavement**  
Hisho Mori, Eiji Noguchi, Motoomi Yoshida, Tomotaka Ueta, Kenichi Ishikawa, Shirou Kabashima, Takayuki Daimoto, and Hiroshi Miyazaki
- 16:00 287 Semi-empirical simulation of tire-road noise based on surface texture, speed and contact forces**  
Marcos Manuel Sanchez and Wolfram Ressel
- 16:20 807 The simulation of truck tire rolling noise**  
C. Hoever and W. Kropp
- 16:40 353 Statistical modelling of tyre/road noise in Hong Kong**  
Wing-tat Hung and Kai-Long Mak
- 17:00 863 Tire tread vibration damping increase for better road noise and minimum adverse effects**  
Masao Ishihama, Junnya Wachi, Yuhdai Komagamine, Ippei Soma, Sanford E. Hawkins, and Toru Fujikura
- 17:20 362 A model to predict role of different tread parameters on tire noise**  
Nachiketa Tiwari, Abhishek Saraswat, G. Unnikrishnan, Sharad Goyal, and Ujjwal Kumar

## 18.07 Virtual Acoustics Simulations

Nob Hill B

Chairs: Patricia Davies, Steve Rizzi and Aaron Hastings

- 09:00 45 Analytic ray curve tracing for outdoor sound propagation**  
Q. Mo, D. Manocha, H. Yeh, and M. Lin
- 09:20 192 A method for simulation of rotorcraft fly-in noise for human response studies**  
Stephen A. Rizzi and Andrew Christian
- 09:40 193 Experiments on the loudness-transfer of headphone-based virtual acoustics**  
Florian Volk and Hugo Fastl
- 10:00 209 Auralization of tonal rotor noise components of a quadcopter flyover**  
Andrew Christian, D. Douglas Boyd Jr., Nikolas S. Zawodny, and Stephen A. Rizzi
- 10:40 232 Auralisation and visualisation of future air traffic from Lelystad Airport**  
Michael Arntzen
- 11:00 298 The NASA auralization framework and plugin architecture**  
Aric R. Aumann, Brian C. Tuttle, William L. Chapin, and Stephen A. Rizzi
- 11:20 407 Auralization as a tool to study threshold perception of spatial impression**  
Alexandre Virginelli Maiorino and Stelamaris Rolla Bertoli
- 11:40 526 Spatial sound reproduction using binaural technique combined with multi-channel recording/reproduction system**  
Takatoshi Yokota, Sakae Yokoyama, Yoshinobu Yasuno, and Shinichi Sakamoto
- 13:40 571 Directional source modeling for use in acoustic simulations**  
Michael Williams, Greg Kangas, and Steve Mattson
- 14:00 626 A simple approach for the auralization of moving sources**  
Aaron L. Hastings

- 14:20 732 3D hearing with loudspeaker array around pinna**  
Luxin Yang and Rilin Chen
- 14:40 747 Strategies for the real-time auralization of fast moving sound sources in interactive virtual environments**  
Frank Wefers and Michael Vorlander
- 15:00 815 Experimental demonstration of sound prediction by source characterization**  
Liangfen Du and Goran Pavic
- 15:40 941 Contents of a graduate-level course in spatial sound and 3-D audio**  
Victor W. Sparrow and Michelle C. Vigeant
- 16:00 871 Statistical learning methods for predicting single-event sound levels from ground-level meteorological data**  
Steven L. Bunkley, Edward T. Nykaza, D. Keith Wilson, and Dan Valente

### 3.01 Aircraft

Nob Hill C

Chairs: Micah Downing and Wonju Jeon

- 09:00 586 Controllable sound simulations of aircraft flyovers**  
Antoine Minard, Sylvain Hourcade, Christophe Lambourg, and Patrick Bousard
- 09:20 128 BEM technique for acoustic field analysis of a turboprop aircraft in cruise flight**  
Yong Woo Lee and Duck Joo Lee
- 09:40 417 Experimental assessment of the structure-borne noise in an aircraft cabin due to vibrating equipment**  
Olivier Doutres, Alexis Caron l'Ecuyer, and Thineshan Kathirchelvan
- 10:00 542 Analysis of acoustic and vibration transfers in an aircraft cockpit using energy method**  
Gerard Borello, Herve Defosse, Manuel Etchessahar, Fabien Vieuille, and Fabien Ayme
- 10:40 583 Recent aeroacoustics research on airframe noise applications**  
Denis Gely, Fernando De la Puente, and Laurent Leylekian
- 11:00 522 The method of identification for the type of aircrafts**  
Kenichi Morio, Hiroshi Wada, and Yoshio Tadahira
- 11:20 102 Influence of temporal aspects of aircraft sound signature on perceived unpleasantness**  
Arthur Pate, Catherine Lavandier, and Antoine Minard
- 11:40 504 Influence of tonal components on the unpleasantness of airplane noise at take-off**  
L. Brocolini and E. Parizet
- 12:00 97 Key issues in aviation noise management**  
Diana Sanchez, Bernard Berry, Andy Knowles, and Nicole Porter

**3.02 Airports**

Nob Hill C

Chairs: Soo-Gob Lee and Ichiro Yamada

- 13:40 41 Measurement method for the acoustic evaluation of benefits from innovative dispatch towing technologies at Frankfurt Airport**  
Katja Hein and Sebastian Baumann
- 14:00 249 Sound emission of heavy helicopters**  
Jan Anders Marheim, Kare H. Liasjo, and Eyjolf Osmundsen
- 14:20 718 Effects of measurement quantities in the evaluation of aircraft sound events**  
Naoaki Shinohara and Ichiro Yamada
- 14:40 521 Aircraft noise monitoring: Comparison of aircraft noise indexes calculated with two different methods of aircraft noise detection**  
Christophe Rosin and Laurent Iachino
- 15:00 788 A study on the comparison between WECPNLk and Lden for military aircraft noise assessments**  
Jae Sik Park, Seong Chul Yoon, Woo Young Joe, and Sang Kyu Park
- 15:40 443 Impact of relaxing curfew conditions on acoustical environment at Narita International Airport**  
Saburo Ogata, Kazuya Tamaki, and Naoaki Shinohara
- 16:00 458 Changes in sound exposure and residential situation around a few airports in Japan**  
Ichiro Yamada, Kyoichi Goto, and Yasuhiro Hiraguri
- 16:20 465 How to establish a better information disclosure system on noise and environment around the airports in Japan**  
Mari Ueda, Saburo Ogata, Toshikazu Sata, and Ichiro Yamada
- 16:40 524 Database of correction for meteorological and ground effects developed for the aircraft noise prediction model in JAXA's DREAMS project**  
Takatoshi Yokota, Koichi Makino, Toshio Matsumoto, Kohei Yamamoto, and Hirokazu Ishii
- 17:00 200 Acoustic design of new terminal building at Incheon International Airport using computer modeling**  
Chan-Hoon Haan and Chan-Jae Park
- 17:20 748 Verification of an aircraft noise prediction model developed for JAXA's DREAMS project**  
Hirokazu Ishii, Takatoshi Yokota, Koichi Makino, Naoaki Shinohara, and Masayuki Sugawara

**2.01 Railway Vehicle Noise**

Nob Hill D

Chairs: James Philips and Hyo-In Koh

- 09:00 8 ARTC's trial Hunter Valley rail noise abatement program**  
Susan M. Kay and Bas Boly
- 09:20 604 Speech intelligibility testing of rail transit vehicle passenger information systems**  
Gary M. Glickman and Silas J. Bensing
- 09:40 860 Identification of generation of track-bogie induced structure borne sound in trains**  
Hyo-In Koh and Anders Nordborg
- 10:00 672 Practical contact filter for rolling noise using 2D FFT**  
Jiannan Yang

- 10:40 814 Development of a new emergency warning signal for trains to improve detectability of pedestrians wearing headphones**  
Jason C. Ross, Timothy M. Johnson, Tom Campbell, Basant K. Parida, Abdullah K. Zaouk, and Tarek Omar
- 11:00 323 Rail crossing quiet zones: Life-cycle of a project from the noise perspective**  
Peter Hardie and Mike Greene
- 11:20 314 Evaluation of noise generated by a rail yard**  
Ivano Ipsaro Passione, Pasquale Bottalico, Marco Masoero, Francesco Pacini, and Luca Fratini
- 11:40 677 Analysis of using prefabricated structure in rail transit engineering vibration isolation system**  
Chang-yun Zou and Bin Shao
- 12:00 697 California high speed rail noise and vibration**  
Areg Gharabegian

## 12.02 High-Speed Rail Noise & Vibration

Nob Hill D

Chairs: Geert Degrande and James Nelson

- 13:40 968 Numerical, experimental, and hybrid prediction of ground vibrations produced by high speed railway traffic**  
G. Degrande, H. Verbraken, K. Kuo, S. Francois, A. Dijckmans, and G. Lombaert
- 14:00 761 The predicted vibration and ground-borne noise performance of modern high speed railway tracks**  
Tom Marshall, Gennaro Sica, Niall Fagan, David Perez, Oliver Bewes, and Rupert Thornely-Taylor
- 14:20 589 Measured and calculated noise reduction of rail dampers and absorption plates on high speed slab track**  
Michael Dittrich, Freek Graafland, Arno Eisses, and Marten Nijhof
- 14:40 669 Performance and application of sound barriers of high speed railway**  
Cong-Shuang Jiang, Hong-Bing Su, Jia-qi Sun, Yong-kang Miao, Xiang Yan, Dan Q Fang, Mark Chen, and Shih Ming Lu
- 15:00 673 Analysis of vibration characteristics and attenuation efficiency of combined vibration mitigation tracks**  
Fangqiu Sun and Bin Shao

## 12.01 Ground-borne Noise and Vibration Mitigation for Transit Systems

Nob Hill D

Chair: Hugh Saurenman

- 15:40 869 Light rail vehicle vibrations due to wheel flats**  
Derek L. Watry, Thomas F. Bergen, and James T. Nelson
- 16:00 71 Mitigation of ground vibration at the top surface by means of an horizontal wave barrier**  
Loic Grau and Bernard Laulagnet
- 16:20 155 Introduction of floating slab track system on springs applied to highly sensitive areas**  
Thomas Jaquet
- 16:40 827 Dynamic response of high-performance floating slab track**  
James Tuman Nelson, Derek L. Watry, and Miie Amato

**17:00 650 Noise reducing strategies for pavement and bridge rehab projects**  
Bruce Rymer and Paul Donavan

**17:20 878 Rail and wheel maintenance as a noise mitigation measure**  
Hugh Saurenman and Anthony Evans

## 15.01 Vibroacoustics of Lightweight Composite Panels

Salon 1

Chairs: Jean-Luc Kouyoumji and Bryce Gardner

**09:00 76 Measurements of the air-borne and structure-borne sound power transmission through a quiet honeycomb core sandwich panel for a rotorcraft roof**  
Stephen A. Hambric, Micah C. Shepherd, and Noah H. Schiller

**09:20 218 Vibrational behavior of multi-layer plates in broad-band frequency range: Comparisons between experimental and theoretical estimations**  
Kerem Ege, Valentin Henry, Quentin Leclere, Renaud G. Rinaldi, and Celine Sandier

**09:40 365 Hybrid method transmission loss calculations of aircraft cabin sidewall panels: Comparison of wavenumber space approach and real space coordinate approach**  
Uwe C. Mueller

## 17.05 Underwater Noise from Construction

Salon 1

Chairs: James Reyff and Richard Rodkin

**10:40 682 Prediction and modelling of underwater noise in Australian shallow water environments**  
Matthew W. Koessler and Alec J. Duncan

**11:00 408 Mitigation of underwater noise during pile driving of the Garden State Parkway over Great Egg Harbor Bay Project**  
Aravinda Ramakrishna, Raymond Mankbadi, and Glen Schetelich

**11:20 689 Case studies: Hydroacoustic assessments for pile driving projects in Virginia**  
Christopher J. Bajdek

**11:40 939 Acoustical aspects for permitting marine pile driving projects**  
James Reyff

**12:00 996 Underwater noise mitigation using a tunable resonator system**  
Mark S. Wochner, Kevin M. Lee, Andrew R. McNeese, and Preston S. Wilson

## ASME NCAD Rayleigh Lecture

Salon 1

**13:40–15:00 Good Vibrations: Low Power Energy Harvesting**  
Daniel J. Inman

## 11.03 Renewable Energy Noise Control Technologies

Salon 1

Chair: Mark Storm

**15:40 52 Field comparison of IEC 61400-11 wind turbines - Part 11: Acoustic noise measurement techniques: Edition 3.0 and Edition 2.1**  
Rob Jozwiak, Allan Munro, Duncan Halstead and Addie Denison

**16:00 197 Horizontal directivity characteristics of noise emitted from different wind turbines**  
Yasuaki Okada, Koichi Yoshihisa, Teruo Iwase, Kazuki Higashi, and Naoto Nishimura

- 16:20 304 Practical methods for measuring and assessing wind turbine noise**  
Hideki Tachibana, Akinori Fukushima, Sakae Yokoyama, and Tomohiro Koobayashi
- 16:40 428 Kingston Massachusetts wind turbine acoustical study**  
J. Eric Cox and Christopher W. Menge
- 17:00 622 Comparison of the divergence of sound pressure method with the IEC61400-11 Method in Measuring the Wind Turbine Noise**  
Valentin Buzduga and Alexandru Buzduga
- 17:20 44 Self-reported and objectively measured outcomes assessed in the Health Canada Wind Turbine Noise and Health study: Results support an increase in community annoyance**  
David S. Michaud

## 7.01 Noise & Vibration Control in Buildings

Salon 2

Chairs: Berndt Zeitler and Greg Tocci

- 09:00 375 Structure-borne sound transmission across junctions of finite single and double walls**  
Arne Dijckmans
- 09:20 418 Assessment of the uncertainties using the "two-stage method" for the characterization of structure-borne sound sources**  
Albert Vogel, Oliver Kornadt, Volker Wittstock, and Werner Scholl
- 09:40 424 Reduction of structural vibration through slab cutting in above-grade locations**  
Justin E. Meyer
- 10:00 452 Dynamic stiffness, and impact and airborne sound transmission of recycled floating floor underlayments**  
Paul Downey and Huw Myles
- 10:40 481 Prediction of the variation in vibration characteristics by installing wide beams under floors in apartment buildings**  
Young-Soo Chun, Hye-Ran Kim, and Hong-Seok Yang
- 11:00 518 Identification of heavy-weight impact sound and vibration propagation in multi-story building**  
Sinyeob Lee, Dukyoung Hwang, and Junhong Park
- 11:20 545 Frequency characteristics of the heavy weight floor impact noise of the floor structure in old apartment building**  
Min-Woo Kang, Nam-Soo Lee, Min-Jeong Song, and Yang-Ki Oh
- 11:40 659 Benefits and limitations of concrete inertia bases for vibration isolation of generators**  
Jessie Roy and Russ Lewis
- 12:00 663 Direct airborne and impact sound insulation of steel-framed floors for mid-rise constructions**  
Christoph Holler, Berndt Zeitler, and Ivan Sabourin
- 13:40 664 Comparison of detailed and simplified methods to calculate the apparent sound transmission class for the proposed 2015 national building code of Canada**  
Berndt Zeitler, Jeffrey Mahn, and David Quirt
- 14:00 716 Influence of excitation position and floor-room modal coupling on low frequency impact noise**  
Krister Larsson and Nata Amirarahmadi

- 14:20 3 Impact noise annoyances**  
Filip J.R. Verbandt, Jan Vandendriessche, and Bart Van de Velde
- 14:40 111 The architectural acoustic design of ultra high-rise building — take Z15 Tower as an example an example**  
Quan Li, Xiang Yan, Jianghua Wang, and Jing Su
- 15:40 176 Identifying impacts of amplified sound in commercial spaces below residences in mixed-use buildings**  
Tyler Adams and Mei Wu
- 16:00 299 An interior noise control assessment for an industrial lubricants manufacturing facility**  
Marc Wallace and Matthew Riegert
- 16:20 468 The present condition and considerations on apartment balcony draining noise in Korea**  
Min-Jeong Song, Min-Woo Kang, Nam-Soo Lee, and Yang-Ki Oh
- 16:40 498 Washing-machine noise and vibration-transmission characteristics in apartment home**  
Hye-Kyung Shin, Jun-Oh Yeon, and Kyoung-Woo Kim
- 17:00 945 Influence of the floor load on the heavy-weight floor impact sound insulation**  
Atsuo Hiramitsu
- 17:20 910 Resilient ceiling retrofit in wood-framed mixed-use building**  
Jim X. Borzym

### 8.03 Sound Quality

Salon 3

Chairs: Sang Kwon Lee and Klaus Genuit

- 09:00 130 Perceptive representation of aircraft noise unpleasantness at landing**  
Jean-Francois Sciabica, Anne-Laure Verneil, and Stefan Moal
- 09:20 349 Sound quality analysis of cymbals**  
Toshiki Nakanishi, Tatsuhito Aihara, Mitsuo Iwahara, Tetsuya Sakai, and Gaku Minorikawa
- 09:40 715 Characteristics of parametric speakers using PDM amplifier**  
Wei Quan, Chang Geer, Sahdev Kumar, and Hideo Furuhashi
- 10:00 915 Auditory impression concerning coolness and warmth for automotive HVAC noise**  
Takuya Hotehama, Masaru Kamiya, and Seiji Nakagawa
- 10:40 248 Sound quality analysis of electric parking brake**  
Bahare Naimipour, Giovanni Rinaldi, Valerie Schnabelrauch, Andrea Cerutti, and Cristian Malmassari
- 11:00 728 Relationship between detectability and fluctuation strength of warning sounds for quiet vehicle**  
Nozomiko Yasui and Masanobu Miura
- 11:20 709 Sound effect variation using active sound design system**  
Norio Kubo
- 11:40 742 Subjective evaluation of amplitude fluctuated sounds that warn of approaching quiet vehicle**  
Nozomiko Yasui
- 13:40 202 Product sound design platform based on 1DCAE utilizing sound quality metrics**  
Koichi Ohtomi



**14:00 72 Measurement and evaluation methods for the sound quality of smartphones**  
Gregor Feneberg

**14:20 826 Detection and contribution of outliers in product sound quality evaluation**  
Samir N.Y. Gerges and Roberto A. Dias

**14:40 614 Sound and vibration quality target development and reaction to increasing consumer demands**  
Eric Frank, Bert Engels, Bahare Naimipour, and Giovanni Rinaldi

## 11.01 IT Noise and Vibration

Salon 3

Chairs: Marco Beltman and No Cheol Park

**15:40 288 Calculating tonality of IT product sounds using a psychoacoustically-based model**  
Roland Sottek

**16:00 352 Two noise test codes in The Blue Angel for imaging equipment**  
Christian Fabris

**16:20 918 Development of noise and vibration measurement method based on the actual operating point of small fan installed in electronic equipment**  
Ikuo Kimizuka, Gaku Minorikawa, Toshiaki Nakayama, and Masaharu Miyahara

## 19.02 Standards

Salon 3

Chairs:

**17:00 880 ASTM: Its importance in designing and defining the acoustic aspects of a building and community**  
Bonnie S. Schnitta

**17:20 68 Effects of aircraft noise on children's learning: ACRP 02-47 study design**  
Mary Ellen Eagen, Christopher Waite, Gary Evans, and Charlotte Clark

## 11.06 Benchmark for Numerical Wind Noise Prediction

Salon 4

Chair: Kang-Duck Ih

**09:00 414 Prediction of fluid-borne noise transmission of the Hyundai simplified model using AcuSolve and OptiStruct**  
Michael S. Barton, David Corson, Dilip Mandal, and Kyeong-Hee Han

**09:20 967 Wind noise contribution to vehicle interior SPL — Case study**  
Denis Blanchet, Anton Golota, and Roger Almenar

**09:40 1002 Computational prediction of interior noise for design variations on a simplified vehicle**  
Sivapalan Senthoran, Raghu Mutnuri, Robert Powell, Eui-Sung Choi, and Stephane Cyr

**10:40 548 A method to identify the acoustic contribution in pressure fluctuations acting on a realistic car's side window**  
Bastien Ganty, Diego Copiello, Yves Detandt, and ChanHee Jeong

**11:00 264 Wind noise simulation on Hyundai Simplified Model using multi-disciplinary CFD - Vibro-acoustic approach**  
Korcan Kucukcoskun, Koen Vansant, Ashok Khondge, Jeongwon Lee, Sang Yeop Lee, and Karthik Balachandran

- 11:20 263 On the ability of numerical solvers to predict interior noise transmission of aerodynamic and aeroacoustic sources in a simplified vehicle model**  
Munhwan Cho, Chisung Oh, Hyoung Gun Kim, and Kang Duck Ih

## 17.01 Low Frequency Noise — Impact and Control

Salon 4

Chairs: Bob Hellweg and Jie Li

- 13:40 768 Field experiments on ANC for infrasound by using pneumatic powered sound source**  
Keiichiro Iwanaga and Tetsuya Doi
- 14:00 13 Effects of different devices on acoustic radiation characteristics of underwater pyrotechnic combustion**  
Jie Li, Hua Guan, and Jun Du
- 14:20 421 Infrasound and low-frequency noise measurements at a solar plant**  
Mike Greene

## 9.03 Numerical Modeling

Salon 5

Chairs: Samir Gerges and David Holger

- 09:00 194 Regularisation of the equivalent source method for robust numerical modelling of acoustic scattering**  
Bhan Lam, Stephen Elliott, Jordan Cheer, and Woon-Seng Gan
- 09:20 271 Prediction of sound field in large area by using a hybrid ray-tracing method**  
Zeng Xiangyang and Zhao Long
- 09:40 638 Optimization of the sound package of a truck using Statistical Energy Analysis**  
Yong Sok Jang, Jong Young Kuk, Jong Chan Park, Himanshu A. Dande, Rabah Hadjit, and Eric Frank
- 10:00 730 Application and development of wavenumber extended multi-dimensional interpolation technique for aeroacoustic problems**  
Seokjong Jang, Seoryong Park, Hanahchim Choung, and Soogab Lee
- 10:40 43 A hybrid FEA-SEA model of an engine enclosure**  
David C. Copley and Jiantie Zhen
- 11:00 336 SEA modeling and validation of a truck cab using for sound package optimization**  
Yong Sok Jang, Jong Young Kuk, Jong Chan Park, Rabah Hadjit, Himanshu Dande, and Eric Frank
- 11:20 603 Simulation of noise radiation of an electrical inductor using a multiphysics modeling**  
Kaiss Bouayed, Lassen Mebarek, and Michel Hecquet
- 11:40 925 Comparison of methods for the solution of high frequency vibroacoustic problems**  
Zhidong Zhang, Rohan Bhawar, and S.T. Raveendra

## 18.01 Numerical Methods in Vibro-Acoustics

Salon 5

Chair: Robert Bernhard and Stephen A. Hambric

- 13:40 50 Condensed Transfer Function (CTF) method as a tool for substructuring vibro-acoustic problem**  
Laurent Maxit and Valentin Meyer
- 14:00 275 Aerodynamic noise prediction of a sharp-edged flat plate using a periodic CFCV-BEM technique**  
M. Karimi, P. Croaker, C. Doolan, and N. Kessissoglou

- 14:20 554 Study of the acoustical properties of a condenser microphone under an obliquely incident plane wave using a fully coupled three-dimensional numerical model**  
Vicente Cutanda Henriquez, Salvador Barrera-Figueroa, Antoni Torras-Rosell, and Peter M. Juhl
- 14:40 734 Free and forced vibration analysis of coupled beam and cylindrical shell structure**  
Yipeng Cao and Runze Zhang
- 15:00 749 Development of CSEA and TSEA software for predicting high-frequency dynamic responses in complex plate structure**  
Hyeonmin Yang and Young-Ho Park
- 15:40 888 Numerical modeling of mounting of plate-like elements on sound insulation**  
Tetsuya Sakuma, Naohisa Inoue, and Tsuyoshi Seike
- 16:00 398 Improving the acoustic comfort of vehicle structures by padding rubber layer on interfaces**  
Xing-Rong Huang, Sebastian Besset, Louis Jezequel, and Lin Li
- 16:20 722 Development of noise and vibration coupling analysis programs based on Energy Flow Analysis (EFA) Method**  
Suk-Yoon Hong, Jee-Hun Song, and Hyun-Wung Kwon
- 16:40 233 Low frequency sound transmission of plates in an impedance tube**  
Hyun-Sil Kim, Jae-Seung Kim, Bong-Ki Kim, and Seong-Hyun Lee

#### 5.04 Mufflers and Silencers

Salon 6

Chairs: Phil May, MG Prasad, Li Cheng, and Jin Woo Lee

- 09:00 64 Procedure to estimate the acoustic performance of the particle oxidation catalyst POC with low Mach-number flows**  
Antti Hynninen and Mats Abom
- 09:20 21 Acoustic attenuation prediction of splitter silencers by using combined BEM and point collocation approach**  
Liang Yang, Zhenlin Ji, and T.W. Wu
- 09:40 103 Comparison of numerical approaches for the acoustic modelling of dissipative silencers with temperature gradients and mean flow**  
E.M. Sanchez-Orgaz, F.D. Denia, J. Martinez-Casas and L. Baeza
- 10:00 289 Study and evaluation of sound absorbing treatment in silencers**  
Rabab S. Youssef, Abd El Fattah A. Mahmoud, S.M. El-Mossalamy, and N. Makarm
- 10:40 330 Sound transmission losses across expansion chambers with staggered sub-chambers in a low Mach number flow duct**  
Shiu-Keung Tang and Yijia Tang
- 11:00 339 Optimal topology for high insertion loss of reactive muffler**  
Jin Woo Lee and Jong Kyeom Lee
- 11:20 440 Design of an acoustic silencer with the microperforated elements considering flow effects**  
Seungkyu Lee and J. Stuart Bolton
- 11:40 453 Ventilated silencing device and its modeling using a substructuring approach**  
Xiang Yu and Li Cheng

- 12:00 466 Design optimization of a suction muffler to maximize energy efficiency and minimize broadband noise**  
Seung-Jae Oh and Se-Myung Wang
- 13:40 537 The influence of agglutinated wood chips on the insertion loss of splitter attenuators**  
Jamilla Balint, Gerhard Graber, Herbert Hahn, and Michael Moczon
- 14:00 717 High intensity and low frequency tube sound transmission loss measurements for automotive intake components**  
Edward R. Green
- 14:20 646 Modeling acoustic resonators: From theory to application**  
Matthew F. Calton and Scott D. Sommerfeldt
- 14:40 647 BEM analysis of large tuned dissipative silencers and bar silencers**  
P. Wang and T.W. Wu
- 15:00 665 Using CFD flow fields to inform acoustic finite element models of complex mufflers with thermal and flow effects**  
Bryce K. Gardner, Abderazak Mejdji, and David Copley
- 15:40 230 Analysis of the interaction between cascade sub-chambers using acoustic scattering matrix method**  
Yuhui Tong, Xiang Yu, Jie Pan, and Thomas Graf
- 16:00 208 Circular duct silencers using duct walls with micro-slits**  
T.E. Vigran and T. Haugen
- 16:20 862 A practical guide to the specification and selection of vent and blowdown silencers**  
John E. Praskey
- 16:40 944 Modeling industrial mufflers using two-ports**  
Tamer Elnady and Mina Wagih

## Plenary Session

Salon 7

- 08:00–09:00 Noise Control of Large Mining Machines**  
James K. Thompson

## Poster Session – Industrial, Construction & Machine Related

Salon 8

13:40-15:20

- Abstract 216 Flaw detection in composite pipes using only input signal from a vibration-based impact test**  
Mohan D. Rao and Gaurav A. Agnihotri
- Abstract 486 Mounting condition influence on the vibration of multi-layer ceramic capacitor**  
Byung-Han Ko, Jongbeon Pari, No-Cheol Park, Young-Pil Park, and Young-Ghyu Ahn
- Abstract 494 Nonlinear dynamic model of a pivot ball bearing in hard disk drive including the Hertzian contact force**  
Joo Young Yoon, No-Cheol Park, Gunyeop Lim, and Kyoung-Su Park
- Abstract 793 Case study on the flow induced vibration of oil unloading system in the oil and gas plants**  
In Sun Park, Dong Min Shin, Jae Sik Park, and Sang Kyu Park

- Abstract 796**    **Reduction method for the piping system vibration in nuclear power plant**  
Kuk Hyun Ryu, Hae Dong Park, Sang Kyu Park, and Woo Yeong Cho
- Abstract 854**    **On-land vibration from off-shore construction and demolition**  
Patrick Romero and Kevin Keller
- Abstract 942**    **Assessing underwater sound attenuation methods during impact pile driving the San Francisco Bay area**  
Jordan L. Roberts and Paul Donovan

## Poster Session – Active, Modeling & Measurement Related

Salon 8

15:40-17:20

- Abstract 9**        **Nonlinear interaction of air bubbles and ultrasonic field**  
Christian Vanhill, and Cleofe Campos-Pozuelo
- Abstract 14**     **Application of the MUSIC transformation for evaluation of acoustic interferences occurring during laboratory measurements of electrical discharges**  
Tomasz Boczar, Dariusz Zmarzly, and Pawel Fracz
- Abstract 15**     **Analysis of interferences in the acoustic measurement of partial discharges of electric power transformers**  
Dariusz Zmarzly, Tomasz Boczar, and Pawel Fracz
- Abstract 302**    **Analytical model for the prediction of sound transmission through perforated sound absorber**  
Goto Hayato, Nasu Tsunetoshi, Nishimura Sohei, and Nishimura Yuya
- Abstract 703**    **Experimental verification on efficiency of noise reduction based on active noise control in driver's cab of high-speed train**  
Hae-Young Ji, Dong-Hoe Koo, Kang-Youn Choe, and Woong-Young Lee
- Abstract 708**    **Simulation of acoustical noise reduction for magnetic resonance imaging by an active control headphone with piezoelectric plate and earmuff**  
Ryosuke Osada, Kenji Muto, Kazuo Yagi, and Guoyue Chen
- Abstract 889**    **An analysis of the parameters of an active PZT element of a knock sensor**  
Stanislav Klusacek, Jiri Fialka, Zdenek Havranek, and Petr Benes

## 7.02 Community Noise

Salon 10

Chair: Idar Granolen

- 09:00 59**        **Questionnaire survey of students' and teachers' perception on sound quality in elementary school in Guangzhou**  
Jundong Wang and Jianxin Peng
- 09:20 866**     **Investigation of noise pollution on campus due to building chillers**  
Richard J. Ruhala, Jacob D. Davis, and Daniel Y. Karasek
- 09:40 140**     **Environmental noise performance: The detail of the building shape influence**  
Rafaella Estevao da Rocha, Stelamaris Rolla Bertoli, and Alexandre Virginelli Maiorino
- 10:00 535**     **Annoyance from small firearms shooting noise: A field study in Norway**  
Lars Robert Nordin, Ronny Klæboe, and Astrid Helene Amundsen

- 10:40 675 Noise measurements of the 155 mm field Howitzer**  
Waseim Alfred
- 11:00 395 Study on the relation between road traffic noise and urban characteristics**  
Guillermo Rey-Gozalo, Juan Miguel Barrigon-Morillas, Jose Trujillo-Carmona, Rosendo Vilchez-Gomez, Valentin Gomez-Escobar, David Montes-Gonzalez, Pedro Atanasio-Moraga, Juan-Antonio Mendez-Sierra, and Carlos Prieto-Gajardo
- 11:20 19 An assessment of noise exposure along the High Line, New York City**  
E.P. Bourdeau, X.Y.K. Zheng, E.A. King, and F. Pilla
- 11:40 382 Model based monitoring for industrial and traffic noise control**  
Frits van der Eerden, Bas Binnerts, and Freek Graafland

## 21.01 Student Presentation Competition

Salon 10

Chair: Yong-Joe Kim

- 13:40 425 Overview of Hunt, Beranek, and Maa's 1939 paper on analysis of sound decay in rectangular rooms**  
Philip A. Feurtado
- 14:00 605 Overview of Maa Dah-You's 1987 paper on "Microperforated-Panel Wideband Absorbers"**  
Rui Cao
- 14:20 639 Overview of Paul E. Sabine's 1931 paper: A critical study of the precision of measurement of absorption coefficients by reverberation methods**  
Yangfan Liu
- 14:40 702 Sound design of a dual shell horn based on numerical methods in a passenger vehicle**  
Tae-Jin Shin, In-Seok Lee, In-Sik Bae, and Sang-Kwon Lee
- 15:00 752 Sound field reproduction based on Least-Squares Method**  
Jihyeon Jeong and Youngjin Park

## 17.03 Differences in Noise-Exposure Response Functions

Salon 10

Chairs: Truls Gjestland and Femke Gelderblom

- 15:40 495 Temporal trends in aircraft noise annoyance**  
Truls Gjestland, Femke B. Gelderblom, Sanford Fidell, and Bernard Berry
- 16:00 308 Exploring the relationships between percent highly annoyed and residents' judgments about the airport**  
Nicholas P. Miller
- 16:20 491 Social surveys around Noi Bai Airport before and after the opening of the new terminal building**  
Thu Lan Nguyen, Thao Linh Nguyen, Takashi Yano, Makoto Morinaga, Ichiro Yamada, Tetsumi Sato, and Tsuyoshi Nishimura
- 16:40 904 Vibrations due to trains: Exposure response relations and the role of contextual and personal factors**  
Irene van Kamp, Elise van Kempen, Harm van Wijnen, Edwin Verheijen, Tiffany Istamto, Oscar Breugelmans, Liesbet Dirven, and Arnold Koopman

- 17:00 366 Annoyance due to combined railway and road traffic noise exposure: Testing of total annoyance models and dose-effect relationships for noise in isolation**  
Laure-Anne Gille, Catherine Marquis-Favre, and Julien Morel
- 17:20 39 Some regulatory implications of the 2015 revision of ISO's 1996-1 standard**  
Sanford Fidell and Truls Gjestland

## 6.01 Active Vibration Control

Salon 11

Chairs: Gi Woo Kim and Noah Schiller

- 09:00 1 Simultaneous placement of sensors and actuators for active vibration control systems**  
Thomas Haase
- 09:20 29 The simulation study on vibration and shock integrated control of two-stage vibration isolation system**  
Yun-Bo Hu, Zi-Hao Liu, Wan-You Li, Zhi-Peng Wang, and Zhi-Jun Shuai
- 09:40 457 Model reduction for active structural vibration control**  
Gerain Hernandez, David F. Novella, and Basilio Del Muro
- 10:00 712 Turnable viscosity of photo-rheological fluids and its application to structural damping control**  
Gi-Woo Kim, Jong-Hwan Yoon, Min-Young Cho, Ji-Sik Kim, and Seoung-Bok Choi
- 10:40 933 Broadband active control of noise and vibration in a fluid-filled pipeline using an array of non-intrusive structural actuators**  
Jordan Cheer and Steve Daley
- 11:00 153 Vibration control system using smart fluid actuators**  
Seung-Bok Choi and Jong-Seok Oh
- 11:20 46 Significant reduction of vibration and sound in plates at selected modes with combined active and passive damping patches**  
Joseph Plattenburg and Rajendra Singh
- 13:40 206 A proposal of active noise control not depending on the acoustic transfer characteristic and its extension to repeated impulsive sound**  
Tatsuhiko Goto, Akihiko Enamoto, and Osamu Nishimura
- 14:00 403 Investigation on active control of structurally radiated sound from finite length elastic cylindrical shell**  
Xiao-ling Liu, Hui-Chao Ren, and Long-Shu Yang
- 14:20 126 Development of a voice shutter (Phase 2: Open type)**  
Masaharu Nishimura, Koji Shiratori, Kazunori Sakurama, and Shin-Ichiro Nishida
- 14:40 906 Measurement of behavior of a force-moment actuator in general working mode**  
Ondrej Jiricek, Vojtech Jandak, Marek Brothanek, and Vaclav Pospichal

**16.06 HVAC & Building Systems Noise**

Salon 11

Chairs: Jeff Fullerton and Michel Yantis

- 15:40 90 Control of infrasonic noise from mechanical ventilation systems in sensitive imaging laboratories**  
Steven B. Lank and Michael L. Gendreau
- 16:00 175 Case study of a 10-story office building with four 200,000 CFM fan-wall arrays**  
Tyler Adams and Mei Wu
- 16:20 213 An investigation into HVAC directivity: Theory versus reality 2.0**  
**Tim Wiens, Michael Masschaele, Gordon Reusing, and Slavi Grozev**
- 16:40 261 A comprehensive refrigeration system noise study across 20 existing stores in a grocery store chain**  
Jeff Teel
- 17:00 668 Elevator noise reduction in a high rise luxury condominium**  
Michael Yantis
- 17:20 781 Noise and vibration control of an offset traction elevator system**  
Jeffrey L. Fullerton and Tray Edmonds

**5.01 Absorption Materials and Treatments**

Salon 12

Chairs: Gordon Ebbitt, Nouredine Atalla, and Olivier Doutres

- 09:00 926 Designer backings to improve microperforated panel absorber performance**  
Weichen Wang, Robert Wick, and D.W. Herrin
- 09:20 964 Effect of orientation of fibers on the acoustical properties of a natural material**  
S. Fatima and J. Stuart Bolton
- 09:40 20 The prediction of the diffuse field sound absorption of perforated panel systems**  
David James Larner and John Laurence Davy
- 10:00 528 A pilot study of sound absorption by a perforated panel with bending tube extension built in the panel**  
Shinsuke Nakanishi
- 10:40 171 General models for acoustical properties of porous media, and reduction to simpler models**  
D.K. Wilson
- 11:00 442 Study of an axial fan combined with a microperforated duct**  
Seungkyu Lee and J. Stuart Bolton

**17.04 Psychological Evaluation of Noise in Daily Life**

Salon 12

Chairs: Sonoko Kuwano and Hugo Fastl

- 13:40 369 Physical and perceptual characterization of aircraft noise to better assess noise annoyance**  
Laure-Anne Gille and Catherine Marquis-Favre
- 14:00 381 Directivity characteristics of dental turbines and their relevance for sound-quality evaluation**  
Florian Volk and Hugo Fastl



**14:20 461 Evaluation of bone-conducted sound via teeth**  
Tomomi Yamada, Mikadko Hayashi, and Sonoko Kuwano

**14:40 467 How high-frequency do children hear?**  
Mari Ueda, Kaoru Ashihara, and Hironobu Takahashi

**15:00 500 Picture frustration study on attitudes towards life convenience and natural environment in Hanoi**  
Thu Lan Nguyen, Takashi Yano, Ichiro Yamada, Sonoko Kuwano, and Huy Quang Nguyen

## 14.02 Acoustic Meta Materials and Phononic Crystals

Salon 12

Chair: J. Stuart Bolton

**15:40 67 On the use of the transformation acoustics approach in aeroacoustics**  
Umberto Lemma

**16:00 81 Phononic crystal slab optimization by means of resonant interface layers**  
Pierre Meresse, Christian Audoly, Ygaal Renou, Charles Croenne, and Anne Christine Hladky

**16:20 954 Two-dimensional arbitrary shape acoustic cloaks composed of homogeneous parts realized by layered structures**  
Qi Li and Jeffrey S. Vipperman

**16:40 332 Two-dimensional acoustic cloak using axisymmetric cylindrical lattices**  
Jihoon Jeong, Choonghee Jo, and Il-Kwon Oh

**17:00 449 Sound absorption of Porous Glass Graded Materials (PG-FGM)**  
Xu Ying, Luo Lu, and Hou Hong

**17:20 227 Metamaterial-inspired structure for improved low-frequency acoustic noise mitigation**  
Anuj Rekhy, Ryan Aiken, and James M. Manimala

## 8.01 Impact of Noise on Health

Salon 13

Chair: Mathias Basner

**09:00 803 Effects of aircraft noise on sleep: Habituation in the laboratory and in the field**  
Mathias Basner, Sarah McGuire, Eva-Maria Elmenhorst, and Uwe Muller

**09:20 751 A prospective cohort study of road traffic noise effects on diabetes**  
Charlotte Clark, Lillian Tamburic, Michael Brauer, and Hugh Davies

**09:40 630 Influence of road traffic noise in ischaemic heart disease: Introduction to the issue in Santiago de Chile**  
Ismael Gomez, Max Glisser, and Camilo Padilla

**10:00 56 Study on annoyance, disturbance and disease due to the combined noises from road traffic and viaduct rail transit**  
Guo-Qing Di, Dan-Qun Fang, and Ya-Qian Xu

**10:40 902 A conceptual model of environmental noise interventions and human health effects**  
A.L. Brown and Irene van Kamp

**11:00 315 Characterizing impulsive noise with A-weighted sound pressure, kurtosis, and higher order statistical moments**  
Edward Zechmann, Willam Murphy, Daniel Russell, and Ingrid Blood

- 11:20 310 Vocal effort and the effect of room acoustics in noisy environments**  
Pasquale Bottalico, Simone Graetzer, and Eric J. Hunter
- 11:40 156 The influence of acoustic treatments in a hospital corridor**  
Zhixiao Deng and Hui Xie
- 12:00 517 A study on comfortable sound design based on a single chord-forming for dental treatment sound**  
Yoshitaka Ohshio, Daisuke Ikefuji, Masato Nakayama, and Takanobu Nishiura

## 8.05 Worker Noise Exposure and Hearing Conservation

Salon 13

Chairs: James Thompson and Amanda Azman

- 13:40 619 Hearing loss prevention - Progress on the NIOSH strategic plan**  
William J. Murphy and James K. Thompson
- 14:00 475 Assessment of Noise Induced Hearing Loss (NIHL) of mine workers in a Bauxite mine using fuzzy logic**  
D.P. Tripathy and D.S. Rao
- 14:20 283 Discomfort reduction based on active noise control and auditory masking for factory noise**  
Rumi Ito, Kota Nakano, Masato Nakayama, and Takanobu Nishiura
- 14:40 284 Musical piece selection for discomfort reduction of dental treatment sound based on auditory masking in time and frequency domains**  
Yoshitaka Ohshio, Daisuke Ikefuji, Takumi Honda, Masato Nakayama, and Takanobu Nishiura
- 15:00 512 A study on discomfort reduction based on auditory masking of multiple spectral peaks for infant cry**  
Aomi Kobayashi, Masato Nakayama, and Takanobu Nishiura
- 15:40 148 Evaluation of speech hearing of Japanese speech with ear plugs in the noisy environment**  
Shinji Kohata, Jinro Inoue, Takao Sakuma, Tomo Nakagawa, Shoko Kawanami, and Seichi Horie
- 16:00 190 Measurement of earplugs insertion loss using a classical impedance tube**  
Olivier Doutres, Franck Sgard, and Guilhem Sgard
- 16:20 490 The change of earmuffs attenuation resulting from the use of personal eye protectors**  
Emil Kozlowski and Rafal Mlynski
- 16:40 843 Uncertainty calculation for hearing protector noise attenuation measurements for one specific brand in one laboratory**  
Rafael Nagi Cruz Gerges and Samir Nagi Yousri Gerges
- 17:00 70 Study of factors governing intelligibility in multi-speaker environments from an experiment with a large panel of listeners**  
Patrick Chevret and Veronique Zimpfer
- 17:20 641 Flight test investigation of cabin noise exposure in the Royal Canadian Air Force CH-147F helicopter**  
Sebastian Ghinet, Andrew Price, Viresh Wickramasinghe, Yong Chen, and Anant Grewal

**6.02 Vibration of Structures**

Salon 14

Chairs: Wen Li, Fabio Semperlotti, Zhidon Zhang, and John Wang

- 09:00 794 Building higher with light-weight timber structures: Effect of wind induced vibrations**  
Marie Johansson, Andreas Linderholt, Asa Bolmsvik, Kirsi Jarnero, Jorgen Olsson, and Thomas Reynolds
- 09:20 921 Statistical parameters extraction of the vibration signals of a gearbox for machine diagnosis**  
Leonardo Sarmiento Moscoso, Grover Zurita Villarroel, Vinicio Sanchez Loja, and Adrian Arpi Sladana
- 09:40 934 Development, simulation and experimental investigation of a function-integrated and foam damped oil pan for a two cylinder Diesel engine**  
Peter Schrader, Tommy Luft, Hermann Rottengruber, Fabian Duvigneau, and Ulrich Gabbert
- 10:00 990 Dynamic analysis of circular cylindrical shell for boundary conditions and structural parameters**  
Huan Meng, Dong-Yan Shi, Yun-Ke Zhao, and Qing-Shan Wang

**6.03 Structural Acoustics**

Salon 14

Chairs: Jorge Patricio and Steve Conlon

- 10:40 187 Effect of resonance scatterers on acoustic wave propagation in buried water pipes**  
Yan Gao, Yuyou Liu, Jun Yang, and Jing Tian
- 11:00 354 The analysis on the dynamic response and acoustic radiation of bionic venation layout stiffened plate under impact load**  
Dong-Yan Shi, Hong-Xu Ai, and Zhi-Kai Wang
- 11:20 406 Numerical investigation of the sound power and of the structural intensity of a permanent magnet synchronous machine**  
Christian Adams, Clarissa Schaal, Joachim Boes, and Tobias Melz
- 11:40 652 Experimental round-robin evaluation on structure-borne sound source force-power test methods**  
H. Kevin Lai, Andy Moorhouse, and Barry Gibbs
- 12:00 777 Low frequency radiation modes of cylindrical shells based on system spatial decomposition**  
Ali Loghmani, Mohammad Danesh, Mehdi Keshmiri, and Moon-Kyu Kwak
- 13:40 873 Prediction of break-out sound from a rectangular cavity via an elastic panel**  
Gang Wang, Wen L. Li, Jingtao Du, and Wanyou Li
- 14:00 877 Blocked forces for the characterisation of structure borne noise**  
Andy Elliott, Joshua Meggit, and Andy Moorhouse
- 14:20 127 The distribution analysis of non-obstructive particle damping in aluminum cantilever beam**  
Xiaofei Lei, Chengjun Wu, and Dongqiang Wang
- 14:40 96 Experimental investigation on the dynamics of pipes conveying fluid based on strain gauge test**  
Yunlong Zhao, Guichen Zhang, and Yong Zhou

**15.02 Vibration and Acoustic/Elastic Waves**

Salon 14

Chair: Charlie Zheng

- 15:40 767 A case study on the vibration monitoring for thermal power plant**  
Seoung-Tae Oh, In-Geouk Joo, Kyeing-Hwan Oh, Mu-Sang Yoo, Cheol-Woo Roh,  
Ha-Yong Gim, Kil-Su Ryu, and Seung-Woo Han
- 16:00 532 The dynamic response analysis of bolted joint structure under the transient excitation**  
Xin Liao, Jianrun Zhang, Zexia He, Xi Lu, and Pu Li
- 16:20 687 Structural-acoustic responses of a coupled panel cavity system using deterministic and statistical approaches**  
Renqiang Jiao, Jianrun Zhang, Fei Xue, Xin Liao, and Xin Liu
- 16:40 22 Scattering of anti-plane SH-wave by multiple cylindrical cavities and fixed surface in elastic semi-space**  
Hongliang Li and Qianwen Hang
- 17:00 40 Flexural wave scattering by multiple arbitrary holes in an infinite thin plate**  
Jing Guo and Hongliang Li
- 17:20 141 Study of parameters influencing pneumatic nail-gun noise**  
Zahra Nili Ahmadabadi, Frederic Laville, and Raynald Guilbault

**9.02 Acoustic and Noise Measurements**

Salon 15

Chairs: Andy Wong, Andrew Barnard, Robert Bernhard, and Joe Cuschieri

- 09:00 394 Comparison of room acoustic parameters calculated by different types of software**  
Joaquin Mansilla, Shin-ichi Sato, Leandro Rodino, Agustin Arias, Florent Masson,  
and Ignacio Calderon De Palma
- 09:20 415 Improved method for estimating noise level reduction of residential houses**  
Robert P. Dougherty, Tessa Robinson, and Mitsuru Kurosaka
- 09:40 456 Reverberation-room measurement assuming a diffuse sound field: Reviewing standards and reality**  
Md Mehadi Hasan and Murray R. Hodgson
- 10:00 502 Angle-dependent reflection factor measurements of finite samples with an edge diffraction correction**  
R. Opdam, D. de Vries, and M. Vorlander
- 10:40 511 Environmental noise recognition with DNN**  
Yasutaka Nakajima, Masahiro Sunohara, Taisuke Naito, Norihito Sunago, and Toshiya Ohshima
- 11:00 565 Implementation of sound intensity measurements into indoor pass-by noise testing**  
Matthias Behrendt, David Landes, and Albert Albers
- 11:20 656 Study on the dissemination of unit Watt in airborne sound**  
Spyros Brezas and Volker Wittstock
- 11:40 731 Measurement of loudspeaker radiation patterns using planar microphone arrays**  
Qiaoxi Zhu, Ming Wu, Ling Lu, and Jun Yang

- 12:00 766 Investigations for determining the sound power level by applying different measurement setups according to ISO 3744**  
Ilka Arendt and Patrick Kurtz
- 13:40 778 Discussion on microphone calibration in infrasonic frequency**  
Feng Niu, Xinjuan Feng, Longbiao He, Bo Zhong, and Huan Xu
- 14:00 795 A new method to characterize impulsive sources using acousto-optic interaction**  
Antoni Torras-Rosell and Salvador Barrera-Figueroa
- 14:20 908 Design of a new ear simulator**  
Dominique Rodrigues, Thomas Lavergne, Erling Sanderman Olsen, Richard Barham, Thomas Fedtke, and Jean-Noel Durocher
- 14:40 989 Progress and discussion on the frequency response measurement of photodetector for ultrasonic applications**  
Xiujuan Feng, Ping Yang, Longbiao He, Bo Zhong, Feng Niu, and Huan Xu
- 15:00 173 Acoustic characteristics of four subway stations in Naples, Italy**  
Umberto Berardi, Gino Iannace, and Giovanna Giordano
- 15:40 513 Thermal comfort in line with a new German acoustic guideline**  
Rainer Machner and Yoan le-Muet
- 16:00 957 A system of far-field sound pressure prediction based on Hadoop**  
Xiaobin Cheng, Shuyuan Shi, Xun Wang, and Jun Wang
- 16:20 642 Measurement procedure for wind turbine infrasound**  
Richard A. Carman
- 16:40 726 Uncertainty of measuring reverberation time at low frequency in a residential building**  
Hansol Lim, Joo Young Hong, and Jin Yong Jeon
- 17:00 634 Practical implementation of immersive gases for improved efficiency of thin-film carbon nanotube thermoacoustic loudspeakers**  
Benjamin S. Beck, Michael E. Zegger, Timothy A. Brungart, Joseph E. Fredley, Brian L. Kline, and Zachary W. Yoas
- 17:20 577 Increasing the efficiency of carbon nanotube, thin film loudspeakers**  
Benjamin S. Beck, Michael E. Zegger, Timothy A. Brungart, Joseph E. Fredley, Brian L. Kline, and Zachary W. Yoas



# TECHNICAL PROGRAM OVERVIEW | WEDNESDAY

ROOM	08:00	08:30	08:40	09:00	09:20	09:40	10:00	10:20	10:40	11:00	11:20	11:40	12:00	12:20	
Nob Hill A				2.02 Tire Noise and Quieter Pavements					10.01 Noise Policies, Legislation and Regulations						
Nob Hill B				2.03 Highway Noise											
Nob Hill C									19.04 National Academics Cooperative Research Program Projects						
Nob Hill D				12.01 Ground-borne Noise and Vibration Mitigation for Transit Systems											
Salon 1				4.01 Sound Propagation in the Atmosphere											
Salon 2				19.02 Standards											
Salon 3									16.05 Noise & Vibration in Industrial Plants						
Salon 4				16.03 Application of Building Envelope to Mitigate Environmental Noise											
Salon 5						20.01 Sharing Analytical, Numerical and Empirical Prediction Methods for Sound Transmission through Light Weight Structures									
Salon 6				5.04 Mufflers and Silencers						17.02 Health Monitoring & Diagnostics					
Salon 7	Plenary Session														
Salon 8									Poster Session						
Salon 9	Exhibit Hall Open														
Salon 10				18.08 Uncertainty Quantifications in Vibroacoustic Problems: Methods and Application						18.04 Uncertainty in Prediction & Assessment					
Salon 11				7.01 Noise & Vibration Control in Buildings											
Salon 12				17.04 Psychological Evaluation of Noise in Daily Life											
Salon 13				19.01 Public Awareness of Noise						8.06 Workplace Noise					
Salon 14				15.03 Acoustic Black Holes: Theory & Application for Noise and Vibration Control											
Salon 15				14.03 Mining Noise Control											

12:40	13:00	13:20	13:40	14:00	14:20	14:40	15:00	15:20	15:40	16:00	16:20	16:40	17:00
			10.01 Noise Policies, Legislation and Regulations										
			2.03 Highway Noise										
			19.04 National Academics Cooperative Research Program Projects										
			INCE/USA Awards										
			19.02 Standards										
			11.04 Mechanical Equipment										
			16.02 Healthcare Acoustics & Noise Control										
			20.01 Sharing Analytical, Numerical and Empirical Prediction Methods for Sound Transmission through Light Weight Structures										
			11.02 Noise & Vibration Control from Launch Vehicles & Spacecrafts										
										Plenary Session			
			FCTP										
			7.01 Noise & Vibration Control in Buildings							16.06 HVAC & Building Systems Noise			
			17.04 Psychological Evaluation of Noise in Daily Life							14.02 Acoustic Meta Materials and Phononic Crystals			
			16.07 Residential & Mixed Use Acoustics & Noise Control										
			9.02 Acoustic and Noise Measurements										



# TECHNICAL PROGRAM OVERVIEW | WEDNESDAY DETAIL

## Wednesday, 12 August

### 2.02 Tire Noise and Quieter Pavements

Nob Hill A

Chairs: Tyler Dare and John Hencken

- 09:00 601 Understanding tire acoustics through Computational Fluid Dynamics (CFD) of grooves with deforming walls**  
Prashanta Gautam and Abhilash Chandy
- 09:20 519 Analysis of tire resonances on the wheel carrier and the rotating wheel**  
Rene Armbruster, Hans-Joachim Unrau, Frank Gauterin, and Jan Fischer
- 09:40 416 Point excitation of a coupled structural-acoustical tire model with experimental verification**  
Rui Cao and J. Stuart Bolton

### 10.01 Noise Policies, Legislation and Regulations

Nob Hill A

Chairs: Truls Gjestland and Marion Burgess

- 10:40 225 Meeting the needs with environmental noise policies**  
Marion Burgess
- 11:00 347 German policy for new noise nuisance in sensitive areas**  
Christian Fabris
- 11:20 169 Acoustics and the Public-Private Partnership (P3) process**  
Nicholas Sylvestre-Williams
- 11:40 960 Developing innovative solutions for traffic noise control in Europe**  
J. Maeck, L. Goubert, P. Morgan, T. Berge, and M. Losa
- 12:00 245 Public participation in the legal definition of flight procedures in Germany**  
Percy Appel, Roman Thierbach, and Annett Zeisler
- 13:40 92 Strategies for the effective reduction of aircraft noise exposure at German airports**  
Rainer Friedrich and Carl-Herbert Rokitansky
- 14:00 244 Legal adaptation of the establishment of flight routes — Deficit analysis and reform proposals**  
Annett Zeisler, Percy Appel, and Roman Thierbach
- 14:20 195 Comparative study of sound power level measurements under the quality powered mechanical equipment system in Hong Kong**  
Chi-wing Law, Ho-wing Leung, Cheung-lam Wong, and Ki-tin Ma

## 2.03 Highway Noise

Nob Hill B

Chairs: Judith Rochat and Kristin Rowe

- 09:00 559 How highway noise is handled in the Netherlands**  
Wiebe Alberts, Richard Jonker, Teun Veger, Petra Paffen, WillemJan van Vliet, and Nico Faber
- 09:20 683 Variations in state highway agency policies in the United States**  
Paul Burge, Cole Matin, and Adam Alexander
- 09:40 454 Current status and issues of road traffic noise prediction in Japan: The example analysis of environmental impact assessment report**  
Keiichi Hasegawa, Keiko Ohkouchio, Hiroshi Yoshinaga, and Ryuji Inoue
- 10:00 616 Avoidance versus abatement: A discussion of options and applications**  
Kristin Rowe and Ken Polcak
- 10:40 969 Investigating the influence of road noise on people's perceptions and health based on physiological indices and blood changes**  
Jen-Fang Yu, Kun-Che Lee, Chi-Chwen Lin, Chia-Yi Lee, and Wen-Ko Chiou
- 11:00 402 Development of a highway traffic noise modeling practitioner's handbook**  
Michael Mulbarger
- 11:20 547 Noise wall construction plan preparation and review**  
Noel Alcala
- 11:40 611 Noise barrier design challenges with Florida's design-build and public-private partnership projects**  
Jim Mykytka, Mariano Berrios, and Brian Kirkpatrick
- 12:00 184 Evaluation of FHWA's Traffic Noise Model in a sanitized environment**  
Monty Rahman
- 13:40 741 Developing the adaptive noise parameter update algorithm based on traffic volume and pavement type**  
Sungho Mun and Deok-Soon An
- 14:00 1007 Modelling of road traffic noise in Sharjah city in the United Arab Emirates**  
Mohamad A. Khalil, Khaled I. Hamad, and Abdallah M. Shanableh
- 14:20 48 Prediction of highway noise barrier insertion loss taking into account overlapping barriers, openings and gaps effects**  
Panos Economou, Panagiotis Charalampous, and Richard J. Peppin

## 3.02 Airports

Nob Hill C

Chairs: Soo Gab Lee and Inchiro Yamada

- 09:00 759 Study on the validity of an airport noise model considering aircraft ground operation noise**  
Toshiyasu Nakazawa, Masayuki Sugawara, Hisashi Yoshioka, and Ichiro Yamada
- 09:20 585 Noise computation for future urban air traffic systems**  
Michael Arntzen, Roalt Aalmoes, Frank Bussink, Emmanuel Sunil, and Jacco Hoekstra
- 09:40 932 Subjective loudness of aircraft noise in the existence of background noise**  
Chanil Chun, Doo Young Gwak, Kiseop Yoon, Yeolwan Seong, and Soogab Lee

**19.04 National Academics Cooperative Research Program Projects**

Nob Hill C

Chairs: Judith Rochat and Micah Downing

- 10:40 75 NCHRP 10-76 Barriers and Quieter Pavement for Traffic Noise Abatement: Review and Legacy**  
Judith Rochat, Paul Donovan, and Dana Lodico
- 11:00 587 ACRP 02-51: Evaluating methods for determining interior noise levels used in airport sound insulation programs**  
Randy Waldeck, Paul Schomer, John Freytag, and Herb Singleton
- 11:20 685 An update on the development of guidance and best practices for application of the FHWA Traffic Noise Model**  
Christopher Bajdek and Christopher Menge
- 11:40 319 Highway noise barrier optimization design tool overview**  
Ruth Mazur, Chris Bajdek, and Chris Menge
- 12:00 166 Mapping heavy vehicle noise source heights for highway noise analysis**  
Carrie Janello and Paul Donovan
- 13:40 623 Helicopter and tiltrotor community noise prediction methodology for aviation environmental design tool**  
Juliet Page, Benjamin May, Eric Boeker, Harry Brouwer, and Clint Morrow
- 14:00 648 NCHRP Project 25-44, Field evaluation of reflected noise from a single noise barrier**  
William Bowlby, Ken Kaliski, and Judith Rochat

**12.01 Ground-borne Noise and Vibration Mitigation for Transit Systems**

Nob Hill D

Chairs: Steve Wolf and Shankar Rajaram

- 09:00 667 Music to your ears: Part 1: Transit groundborne noise criteria for concert halls**  
Deborah Jue and Richard Carman
- 09:20 1006 Music to my ears; Part 2: Design to transit groundborne noise mitigation for concert halls**  
Steven Wolf
- 09:40 73 Using bridge bearings as a vibration mitigation measure for transit aerial structures**  
Shannon McKenna
- 10:00 842 Effects of rail and wheel condition on wayside ground vibration**  
James Tuman Nelson, Derek L. Watry, and Patrick G. Faner
- 10:40 782 Implementing real-time noise and vibration monitoring to minimize disruption to research facilities during construction**  
Gary Glickman and Ani Toncheva
- 11:00 907 Vibration sensitivities and transit system impacts in research-oriented settings**  
Byron Davis

**11:20 321 Considerations for floating slab track (FST) at grade crossings**

Anthony Evans and Judith Rochat

**11:40 924 Acoustic environment of residential buildings along the light rail areas in mountainous cities**

Hui Xie, Cen Liu, Jingwen Zou, Mingyue Li, and Heng Li

**4.01 Sound Propagation in the Atmosphere**

Chairs: Kai Ming Li and Victor Sparrow

Salon 1

**09:00 300 Examining heuristic and machine learning models for predicting outdoor sound propagation**

Carl R. Hart, Nathan J. Reznicek, D. Keith Wilson, Chris L. Pettit, and Edward T. Nykaza

**09:20 410 DISCOVER-AQ: A unique acoustic propagation verification and validation data set**

Eric Boeker, Jordan Camper, Amanda Rapoza, and Hua He

**09:40 412 Effects of carbon dioxide on atmospheric absorption of noise for en-route aircraft and supersonic aircraft**

Erik Petersen and Victor Sparrow

**10:00 894 Sound field predictions for a monopole source moving uniformly in a stratified medium above an impedance plane**

Bao N. Tong and Kai Ming Li

**10:40 992 Two- and three-dimensional model for sound attenuation by objects on propagation**

W. Li, Z.C. Zheng, J. Zhang, and G. Ke

**11:00 606 Time-domain simulations of sound propagation in a simplified forest: A parametric study based on the Transmission Line Matrix (TLM) method**

Pierre Chobeau, Gwenael Guillaume, and Judicael Picaut

**11:20 419 Enhancing aircraft noise propagation modeling — Overview of FAA's research**

Hua He

**11:40 645 A hybrid FEM/PE model for sound propagation over a mixed impedance ground**

Hongdan Tao and Kai Ming Li

**12:00 898 Modeling the influence of weather to acoustic absorption of ground surface: An in-situ study by long-term measurements**

Takuya Oshima, Yumi Kurosaka, and Meiji Honda

**19.02 Standards**

Chairs: Bonnie Schnitta and Erik Miller-Klein

Salon 2

**09:00 31 SAE international noise standards**

James K. Thompson

**09:20 38 Flaws in loudness standard ANSI S3.4-2007: The derivation of nonzero sensation at absolute detection threshold is circular**

Lance Nizami

- 09:40 78 ANSI/ASHRAE/IES/USGBC 189.1— Standard for the Design of High-Performance Green Buildings**  
Erik Miller-Klein
- 10:00 223 Challenges for high-frequency primary calibration of vibration: Pico-meter metrology**  
Wan-Sup Cheung and Kyungmin Baik
- 10:40 262 The need, and plans for, an intra-laboratory study to improve ASTM international standard E90's precision and bias statement**  
Matthew V. Golden
- 11:00 318 Case study: The acoustical and political struggles of developing a new standard**  
Sharon Paley
- 11:20 322 Standards for information technology and telecommunications noise emission measurement**  
Jeff G. Schmitt and Eddie Lam
- 11:40 325 Status of IEC standards in acoustics**  
Mariana Buzduga and Marek Kovacik
- 12:00 336 An overview of the ANSI/ASA standards program**  
Christopher J. Struck
- 13:40 437 ASME noise standards: Present and future**  
David J. Parzych and Robert A. Putnam
- 14:00 573 Realizing the primary standard for sound pressure: The trouble with IEC 61094-2**  
Richard Jackett and Janine Avison
- 14:20 629 Refreshment of the German acoustic standards in 2015**  
Rainer Machner
- 14:40 829 ISO acoustic and noise standards: Recent changes and possible future revisions**  
Robert D. Hellweg Jr. and Paul Schomer

## 16.05 Noise & Vibration in Industrial Plants

Salon 3

Chair: Jeff Fullerton

- 10:40 515 Practical evaluation of acoustically induced vibration risk**  
Takahiro Hida and Shunji Kataoka
- 11:00 520 Reactor internals vibration monitoring of a pressurized water reactor power plant by processing ex-core neutron flux signals**  
Seon Ho Song, Yong Beum Kim, Jin Sung Kim, and Woo Jin Roh
- 11:20 584 The acoustic camera as a tool for machinery maintenance**  
Magdalena Bock, Benjamin Vonrhein, Marc Mehlhaff, and Ulrich Meyer
- 11:40 608 Combined acoustic and vibration characterization of acoustic foam samples and green wall elements using an impedance tube and a scanning laser vibrometer**  
Emmanuel Attal, Nicolas Cote, Gerard Haw, Christian Granger, and Bertrand Dubus
- 12:00 792 Case study on vibration reduction for a condensate vertical pump in the energy plants**  
In Sun Park, Tae Hee Kim, Soung Cheol Yoon, and Sang Kyu Park

**11.04 Mechanical Equipment**

Salon 3

Chair: Shashikant More

- 13:40 950**    **Vibration reduction of parallel panels using foam stiffening elements**  
Jason Ley and John Anton
- 14:00 597**    **Power generator set's acoustic material's Noise Reduction Coefficient (NRC) as selection criterion for acoustic enclosures**  
Shashikant More and Martin Myers
- 14:20 472**    **A study on the vibroacoustics characteristics of direct-coupled cabin installed on the lightweight forklift truck using operational transfer path analysis**  
Kyutae Kim and Younghyun Kim
- 14:40 901**    **Noise generated by masonry saws in Brazilian construction materials**  
Adriano A.R. Barbosa and Stelamaris R. Bertoli

**16.03 Application of Building Envelope to Mitigate Environmental Noise**

Salon 4

Chairs: Maurice Yeung and S.K. Tang

- 09:00 16**    **Comparison of wooden windows of European and Scandinavian style glazed with triple glass units**  
Kestutis Miskinis, Vidmantas Dikavicius, and Arunas Burlingis
- 09:20 47**    **An electronic database of facade sound isolation**  
Anthony Nash
- 09:40 329**    **Acoustical protection of a plenum window installed with sound absorptions**  
Shiu-Keung Tang
- 10:00 335**    **Study of noise reduction effect of acoustic balconies in high-rise buildings**  
Jack Kan, Isaac Chan, Isaac Ng, Maurice Yeung, S.K. Tang, and Patrick Lo
- 10:40 480**    **Specially designed window systems for noise reduction: An application in Hong Kong**  
Maurice Yeung, Isaac Ng, H.F. Chan, S.K. Tang, C.H. Au Yeung, and W.T. Leung
- 11:00 725**    **An investigation on the SRI of traffic noise transmission through an open window into a rectangular room in high-rise buildings**  
Jiping Zhang, Peng Chen, Saiyan Shen, Anguo Zhou, Lu Sun, Yangyang Chen, Qiangqiang Hu, Jie Jiang, Li He, and Wenbo Xiong

**16.02 Healthcare Acoustics & Noise Control**

Salon 4

Chair: Ben Davenny

- 13:40 431**    **Helicopter noise outside a hospital intensive care unit**  
Benjamin Davenny
- 14:00 631**    **Case study: Teaching hospital design with FGI acoustical criteria**  
Jack B. Evans, Chad N. Himmel, and Cassandra H. Weise

## 20.01 Sharing Analytical, Numerical and Empirical Prediction Methods for Sound Transmission through Light Weight Structures

Salon 5

Chairs: John Davy, Steve Hambric, and Berndt Zeitler

- 09:40 74 Tutorial on infinite panel sound transmission loss simulations**  
Stephen A. Hambric
- 10:00 237 Prediction of the acoustic performance of lightweight wood-based floor**  
Catherine Guigou Carter and Corentin Coguenanff
- 10:40 252 Measurements of flow-induced excitation of lightweight vehicle structures**  
Judith Galuba and Carsten Spehr
- 11:00 257 Assessment of analytical predictions for diffuse field sound transmission loss**  
Noah H. Schiller and Albert R. Allen
- 11:20 340 Sound insulation design of the periodic core structures for train applications**  
Seockhyun Kim, Jeung Tae Kim, and Joong Hyeok Lee
- 11:40 373 Modal expansion techniques for predicting sound transmission**  
Arne Dijkmans
- 12:00 691 Measurement and prediction of the sound transmission loss for various sample positions**  
Charles Moritz, Jennifer Shaw, Armando Carrera, Keyu Chen, and David Herrin
- 13:40 698 Empirical model of direct sound transmission through lightweight wood construction**  
Berndt Zeitler, Christoph Holler, and Jeffrey Mahn
- 14:00 53 Approximate equations for the radiation impedance of a rectangular panel**  
John L. Davy, David J. Larnier, Robin R. Wareing, and John R. Pearse
- 14:20 676 Analysis of the effects on transmission loss of changes to stud gauge, spacing, and height in single steel stud walls**  
Wayland Dong and John J. LoVerde
- 14:40 Panel discussion on analytical, numerical, and empirical prediction methods for sound transmission through light weight structures**  
John Davy, Steve Hambric, and Berndt Zeitler

## 5.04 Mufflers and Silencers

Salon 6

Chairs: Phil May, MG Prasad, Li Cheng, and Jin Woo Lee

- 09:00 671 Application and development of allotype micro-perforated panel sound barriers**  
Shih Ming Lu, Sheng-Yun Fu, Dan Q. Fang, and Kun Yao
- 09:20 235 Comparison of noise control effectiveness between bladder-style and liner-style hydraulic noise control Devices**  
Elliott Gruber, Ryan Salmon, John McGrael, and Kenneth Cunefare
- 09:40 123 The measurement of source strength and impedance on a Diesel engine**  
Yitian Zhang, David W. Herrin, Jiawei Liu, and Gayatri Kadlaskar

- 10:00 222 A study on noise transmissibility prediction of rubber bellows in air induction systems**  
Weiguo Zhang, Mac Lynch, Anneleen Van Gils, and Karthik Balachandran

## 17.02 Health Monitoring & Diagnostics

Salon 6

Chairs: Kilong Shin and Werner Talasch

- 10:40 399 Acoustic-based bearing fault detection using the improved kurtogram**  
Xiaoqiang Xu, Ming Zhao, Jing Lin, and Yaguo Lei
- 11:00 204 Structural damage detection using auto correlation function of vibration response under white noise excitation**  
Muyu Zhang, Ruediger Schmidt, and Bernd Markert
- 11:20 700 Feature extraction for rotary-machine acoustic diagnostics focused on periodic period**  
Kesaaki Minemura, Tetsuji Ogawa, and Tetsunori Kobayashi
- 11:40 864 Ground monitoring of vibration of bottom hole assembly in a drill string system using acoustic transfer functions and hybrid analytical/two-dimensional finite element method**  
Seongil Hwang and Yong-Joe Kim
- 12:00 501 A new measure of similarity for deterministic signals**  
Kihong Shin

## 11.02 Noise & Vibration Control from Launch Vehicles & Spacecrafts

Salon 6

Chair: Ran Cabell

- 13:40 247 SMA mesh washer applications for launch and on-orbit vibration isolation**  
Seong-Cheol Kwon, Su-Hyeon Jeon, and Hyun-Ung Oh
- 14:00 479 Source-path-receiver approach to isolator design for reaction wheels on satellite structures**  
Gyunchul Hur and Kwang-joon Kim
- 14:20 674 Experimental evaluation of spacecraft RWA disturbance with flexible structural effects**  
Geeyong Park, Jongeun Suh, and Jae-Hung Han
- 14:40 744 Empirical acoustic loads prediction of high-speed vehicle including launch tube effects**  
Seoryong Park, Seokjong Jang, HanAhChim Choung, Wonjong Eun, Ho-Joon Lee, SangJoon Shin, and Soogab Lee

## Plenary Sessions

Salon 7

- 08:00–09:00 Road Traffic Noise Mitigation — Recent Progress and Trends**  
Jørgen Kragh
- 16:00–17:00 Where We Go From Here to Engineer a Quieter America**  
William W. Lang and George C. Maling, Jr.



**Poster Session – Health & Sound Quality Related**

Salon 8

10:40-12:20

- Abstract 240** **Child group constitution and its relation to noise in preschools**  
Fredrik Sjödin and Gregory Neely
- Abstract 258** **The association of noise sensitivity with musical aptitude and everyday use of music (abstract 258)**  
Marja Heinonen-Guzejev, Marina Kliuchko, Lucia Monacis, Vittoria Spinosa, Kauko Heikkila, Mari Tervaniemi, and Elvira Brattico
- Abstract 276** **Evaluation of human sensitivity to building vibration**  
Hitoshi Matsushita, Shunsuke Naganuma, Eiichi Kuroda, and Yutaka Yokoyama
- Abstract 713** **Characteristics of parametric speakers using PWM amplifier**  
Wei Quan, Chang Geer, Sahdev Kumar, and Hideo Furuhashi
- Abstract 783** **Health effects on apartment noise in Korea**  
Young Min Park, Kyoung Min Kim, and Kwangkyu Kang
- Abstract 984** **An ambient noise clustering method for Japanese speech intelligibility estimation**  
Yosuke Kobayashi and Kazuhiro Kondo

**18.08 Uncertainty Quantifications in Vibroacoustic Problems: Methods and Application**

Salon 10

Chair: Kheirollah Sepahvand

- 09:00 165** **Uncertainty quantification in numerical and experimental models of structural vibration problems**  
P. Langer, K. Sepahvand, and S. Marburg
- 09:20 280** **Probabilistic FEM vibroacoustic analysis of fibre-reinforced composite having spatial random parameters**  
K. Sepahvand and S. Marburg
- 09:40 746** **Uncertainty analysis of TPA with tonal excitation**  
Michael Vorlander and Samira Mohamady

**18.04 Uncertainty in Prediction & Assessment**

Salon 10

Chair: Christian Kirists

- 10:40 290** **Uncertainty calculations of pressure sensitivity on one inch microphones using pressure field method at NIS**  
Abd El Fattah A. Mahmoud, Hany A. Shawky, Rabab S. Youssef, Tarek M. El-Basheer, and Hatem Khalaf Mohamed
- 11:00 400** **Uncertainty in the assessment of urban noise through continuous sampling**  
Juan Miguel Barrigon-Morillas, Carlos Prieto-Gajardo, Rosendo Vilchez-Gomez, and Guillermo Rey-Gozalo

- 11:20 949 Variations and uncertainties calculating noise indices using the new Annex II methods of the European noise directive**  
Christian Kirisits and Christoph Lechner
- 11:40 811 Uncertainty of an in situ method for measuring ground acoustic impedance**  
David Ecotiere, Philippe Gle, Benoît Gauvreau, Régis Boittin, Hubert Lefevre, and David Lunain

## 7.01 Noise & Vibration Control in Buildings

Salon 11

Chairs: Berndt Zeitler, Greg Tocci, Jean-Luc Kouyoumji, and Patricia Davies

- 09:00 694 Computing tool for simulation and evaluation of the facades acoustic insulation performance**  
Vanessa F.M. Takahashi and Stelamaris R. Bertoli
- 09:20 750 A study on sound field changes in indoor facilities and equipment of apartments by using acoustic simulation software**  
Nam-Su Lee, Min-Jeong Song, Min-Woo Kang, and Yang-Ki Oh
- 09:40 798 A study on structure borne noise of hollow slab through a scale model**  
Seong Chul Yoon and Sang Kyu Park
- 10:00 819 Modelling walking loads on a lightweight wooden floor**  
Anders Sjöstrom, J. Negreira, and D. Bard
- 10:40 836 Providing speech security for meeting rooms using the threshold of information leakage**  
Carl Hopkins, Matthew Robinson, Ken Worrall, and Tim Jackson
- 11:00 850 Preliminary results on the acoustic environment in classrooms in France**  
Simon Bailhache and Catherine Guigou-Carter
- 11:20 833 Experiences with sound insulating open windows in traffic noise exposed residential areas**  
Birgit Rasmussen
- 11:40 913 Sound insulation window design for sound insulation in areas impacted by aircraft noise**  
Li-Juan Zhang, Rui-xiang Song, Xu Liu, and Wenting Shi
- 13:40 77 Dynamic stiffness evaluation of floor covering system made of recycled EVA — Ethylene Vinyl Acetate**  
Leticia K. Zuchetto, Maria Fernanda O. Nunes, and Bernardo F. Tutikian
- 14:00 83 Effects of noise flanking paths on Ceiling Attenuation Class (CAC) ratings of ceiling systems and inter-room speech privacy**  
Gary S. Madaras and Andy E. Heuer
- 14:20 186 Optimal design of duct openings in naturally-ventilated buildings**  
Vivek V. Shankar and Murray Hodgson
- 14:40 238 Acoustic comfort evaluation in lightweight wood-based and heavyweight concrete-based buildings**  
Catherine Guigou Carter and Nicolas Balanant
- 15:00 54 Isolation of lightweight wood structures from ground-borne railway vibration**  
Scott Harvey and Matthew Reihl

**17.04 Psychological Evaluation of Noise in Daily Life**

Salon 12

Chairs: Sonoko Kuwano and Hugo Fastl

- 09:00 34 Subjective and instrumental evaluation of noise from a fuel metering pump of a parking heater**  
Hugo Fastl and Dimitar Boskov
- 09:20 36 Psychological evaluation of transmitted sounds in living spaces**  
Sonoko Kuwano, Seiichiro Namba, Heiichiro Ohkawa, and Kyoichi Amakawa
- 09:40 279 Presentation of physical indices to define levels of human response to titubation of floors**  
Shintaroh Fukuda and Yutaka Yokoyama
- 10:00 531 Audio-visual interaction of environmental noise in daily life**  
Anna Preis, Honorata Hafke-Dys, Malina Szychowska, and Jędrzej Kocinski
- 10:40 625 Modeling noise annoyance with a new amplitude variation index for urban road traffic comprising powered-two-wheelers**  
Laure-Anne Gille, Catherine Marquis-Favre, and Reinhard Weber
- 11:00 714 Investigation on a novel experimental program for subjective evaluation of sound quality**  
Xue Fei, Sun Beibei, Chen Jiandong, Jiao Renqiang, and Liu Xin
- 11:20 832 A laboratory study on perception of supersonic aircraft noise as heard indoors**  
Daniel J. Carr and Patricia Davies
- 11:40 236 Study on a reproduce level of an announcement at a station for the elderly user**  
Sohei Tujimura and Yasuhiko Izumi
- 13:40 294 Effect of infrasound and low-frequency noise with regard to the loudness estimation**  
Moehler Ulirich, Eulitz Christian, and Huth Christine
- 14:00 762 Improvement of sound emitted from copy machine**  
Takeo Hashimoto and Shigeko Hatano
- 14:20 763 The sounds of household appliances and its relationship with the quality of life**  
M. Ercan Altinsoy

**19.01 Public Awareness of Noise**

Salon 13

Chair: Umberto Iemma

- 09:00 593 Undergraduate noise control: Not just acoustics for dummies**  
Tyler Dare
- 09:20 825 Airborne sound power level measurement methods revisited**  
Patrick Kurtz and Ilka Arendt

- 09:40 80 Life-cycle costs and infrastructural investments induced by unconventional low-noise aircraft**  
Umberto Iemma, Fabio Pisi Vitagliano, and Francesco Centracchio
- 10:00 909 The perceived customer satisfaction of sound transmission in relation to final product price**  
Fredrik Lindblad and Tobias Schauerte

## 8.06 Workplace Noise

Salon 13

Chairs: James Thompson and Hugo Camaro

- 10:40 505 Result of measurement Speech Transmission Index STI in open plan office**  
Witold Mikulski and Izabela Jakubowska
- 11:00 508 Research results about noise at call centers work stations**  
Izabela Jakubowska, Witold Mikulski, and Jan Radosz
- 11:20 163 Assessment of noise and infrasonic noise at workplaces in the wind farm**  
Dariusz Pleban and Jan Radosz
- 11:40 627 Exploring the accuracy of smartphone applications for measuring environmental noise**  
Enda Murphy, Eoin A. King, Sean Rahusen, Jake Schpero, and Lane Millar

## 16.07 Residential & Mixed Use Acoustics & Noise Control

Salon 13

Chair: Jeff Babich

- 13:40 265 Laboratory data examining impact and airborne sound attenuation in cross laminated timber panel construction**  
Wilson Byrick
- 14:00 813 Analysis method for determining acoustical performance between indoor mixed uses and residences**  
John LoVerde and Wayland Dong
- 14:20 172 Designing a townhouse complex that shares a wall with a cinema**  
Nicholas Sylvestre-Williams, Derek Flake, and Dylan Salazaar
- 14:40 260 Layered composite for impact noise reduction in floors**  
Aline Zini, Maria Fernanda de Oliveira Nunes, Ana Maria Coulon Grisa, Daniel Tragnago Pagnussat, and Mara Zeni

## 15.03 Acoustic Black Holes: Theory & Application for Noise and Vibration Control

Salon 14

Chairs: Steve Conlon and Fabio Semperlotti

- 09:00 920 A review of experimental investigations into the acoustic black hole effect and its applications for reduction of flexural vibrations and structure-borne sound**  
Elizabeth P. Bowyer and Victor V. Krylov
- 09:20 620 Experimental analysis of vibration and radiated sound power reduction using an array of acoustic black holes**  
Philip A. Feurtado and Steve C. Conlon

- 09:40 355 Experimental and theoretical study of the reflection coefficient of a ABH beam termination**  
A. Pelat, V. Denis, and F. Gautier
- 10:00 670 Investigation of the acoustic black hole termination for sound waves propagating in cylindrical waveguides**  
Abdelhalim Azbaid El-Ouahabi, Victor V. Krylov, and Daniel J. O'Boy
- 10:40 599 Experimental verification of energy harvesting performance in plate-like structures with embedded acoustic black holes**  
L. Zhao, S.C. Conlon, and F. Semperlotti
- 11:00 451 Characterization of acoustic black hole effect using a 1-D fully-coupled and wavelet-decomposed semi-analytical model**  
Li-ling Tang, Su Zhang, Hong-li Ji, Li Cheng, and Jin-hao Qiu
- 11:20 137 Vibration control using grids of acoustic black holes: How many is enough?**  
Stephen C. Conlon, John B. Fahnlone, Micah R. Shepherd, and Philip A. Feurtado
- 11:40 952 Acoustic meta-structures based on periodic acoustic black holes: Dispersion and propagation Characteristics**  
H. Zhu and F. Semperlotti
- 12:00 462 Vibration control of variable thickness plates with embedded acoustic black holes and dynamic vibration absorbers**  
Xiuxian Jia, Du Yu, and Kunmin Zhao

### 14.03 Mining Noise Control

Salon 15

Chairs: Joe Cuschieri and Hugo Camargo

- 09:00 124 Comparison of numerical and experimental results of noise controls for a longwall shearer cutting drum**  
Hugo E. Camargo, Mingfeng Li, and Lynn Alcorn
- 09:20 134 Acoustic characteristics analysis on the jumbo drill noise**  
Mingfeng Li, Jeffrey S. Peterson, and Jessie J. Mechling
- 09:40 138 Laboratory evaluations of a 25-mm drill bit isolator to reduce noise from roof bolting machines in underground coal mines**  
Amanda S. Azman, Lynn Alcorn, and Mingfeng Li
- 10:00 142 Beamforming and coherence analysis of a single boom jumbo drill**  
Jeffrey Shawn Peterson, Hugo Camargo and Mingfeng Li