TECHNICAL PROGRAM

Contributed papers are welcome in all branches of acoustics. The technical program will consist of lecture and poster sessions. Technical sessions will be scheduled Monday through Friday, 3–7 June 2013.

Every effort will be made to schedule contributed abstracts in accordance with author and Technical Committee preferences. However, authors should be prepared to accept assignment to poster sessions. Assignments will take into account: a) author preference, b) program balance, and c) Technical Committee instructions. Abstracts will be rejected if they do not comply with the instructions.

The special sessions described below will be organized by the Technical Program Committee. Authors of invited papers must indicate on their abstracts the title of the special session in which they have been invited to participate. Authors of contributed papers have the option to request placement of their abstracts in these sessions. If no special session placement is requested, contributed papers will be scheduled in sessions with abstracts of similar technical content.

SPECIAL SESSIONS, ORGANIZERS, AND DESCRIPTIVE SENTENCES

ACOUSTICAL OCEANOGRAPHY (AO)

Estuarine Acoustics
Organized by: Andone C. Lavery

Seismic Oceanography
Organized by: Warren Wood, Josette P. Fabre

ANIMAL BIOACOUSTICS (AB)

Animal Vocal Modification in Noise
Organized by: Susan E. Parks

Conditioning, Segmentation, and Feature Extraction in Bioacoustic Signals
(Joint with Signal Processing in Acoustics)
Organized by: David K. Mellinger

Listening in the Natural Environment
(Joint with Psychological and Physiological Acoustics, Signal Processing in Acoustics, and Noise)
Organized by: Cynthia F. Moss, Peter M. Narins

Metrics, Units, and Noise Criteria
(Joint with Noise and ASA Committee on Standards)
Organized by: Michael Stocker

Perceiving Objects
(Joint with Psychological and Physiological Acoustics)
Organized by: Caroline M. DeLong, Eduardo Mercado III

DESCRIPTIVE SENTENCES

Estuaries are areas of intense human settlement and use, are typically heavily populated, and can have significant commercial value. Papers are invited in which acoustic instruments and/or techniques are developed and used to address physical oceanographic processes occurring in estuaries and/or the unique ecosystems estuaries support.

Seismic oceanography signals are 20-200 Hz (generally air gun) signals that reflect coherently from thermal-haline contrasts in the water column at lateral resolution of 5-10 m, and can be used to observe internal waves, track thin dense water layers near the seafloor, and identify narrow sound channels.

Implications for the ways animals change their vocalizations in increased background noise from abiotic, biotic, and anthropogenic sources and whether these modifications improve signal detectability.

Processing of a bioacoustic signal needed before a classification algorithm is applied.

Research presented in this session will contribute to our understanding of auditory information processing and perception of communication signals in natural environments.

How to measure sound and noise, how to express the measurements, and how to use these tools to establish noise exposure criteria.

Current theories and empirical findings related to understanding how organisms identify objects using sound.
ARCHITECTURAL ACOUSTICS (AA)

Adapting, Enhancing, and Fictionalizing Room Acoustics
(Joint with Psychological and Physiological Acoustics and Signal Processing in Acoustics)
Organized by: K. Anthony Hoover, Alex U. Case

Balancing Risk and Innovation in Acoustical Consulting
Organized by: Eric L. Reuter

Cultivating the Sustainable in Architectural Acoustics
(Joint with Noise)
Organized by: Jesse J. Ehnert

Dah-You Maa: His Contributions and Life in Acoustics
(Joint with Noise)
Organized by: Ning Xiang, Jing Tian

Footstep Noise Control for Multi-Family Floors
Organized by: Lin Hu, Ciprian Pirvu

New Materials for Architectural Acoustics
(Joint with Noise and Physical Acoustics)
Organized by: Matthew V. Golden

Room Acoustics Computer Simulation
Organized by: Diemer de Vries, Lauri Savioja

Senior and Hearing Impaired Room Treatments
(Joint with Psychological and Physiological Acoustics)
Organized by: Bonnie Schnitta

Vibration in Music Performance
(Joint with Musical Acoustics)
Organized by: Clemeth L. Abercrombie

Virtual Concert Hall Acoustics
(Joint with Musical Acoustics)
Organized by: Sungyoung Kim, Wieslaw Woszczyk

DESCRIPTIVE SENTENCES

Adapting, Enhancing, and Fictionalizing Room Acoustics
Rooms, systems, and techniques for adapting, enhancing, and fictionalizing acoustic performance through audio and architectural acoustics.

Balancing Risk and Innovation in Acoustical Consulting
How consultants determine when to choose innovative new techniques and products over the application of traditional, low-risk solutions.

Cultivating the Sustainable in Architectural Acoustics
Exploration of new and novel green methods, means, and materials used to exploit synergies and address conflicts in new and reused buildings.

Dah-You Maa: His Contributions and Life in Acoustics
Celebrating Dah-You Maa's life and his over seven decades of contributions to architectural acoustics, noise control, and physical acoustics.

Footstep Noise Control for Multi-Family Floors
Identify challenges of and solutions for controlling footstep noise transmission through lightweight floor-ceiling assemblies and heavy concrete floors with various types of tiles.

New Materials for Architectural Acoustics
Review of new materials and new applications of old materials for use in architectural acoustics and noise.

Room Acoustics Computer Simulation
Covers all room acoustics simulation methods including wave models, geometrical acoustics, and hybrid techniques with special emphasis on boundary conditions.

Senior and Hearing Impaired Room Treatments
Correct room acoustics is a critical criterion for maintaining quality of life for rapidly growing aging population. This session is a presentation and discussion of research and case studies of methods and materials that improve speech intelligibility for elderly and hearing impaired in all rooms, i.e., senior facilities, offices, museums, restaurants.

Vibration in Music Performance
Mechanical vibration is responsible for both audible and tactile stimulation in music performance. This session will explore the role that vibration plays in musical communication, sound radiation, listener experience, and other topics.

Virtual Concert Hall Acoustics
In-depth discussion on artistic and technical challenges in virtual recreation and/or active enhancement of a performing space. Topics cover, but are not limited to, psychological effects on performers and audiences, new methods and peripherals, and acoustical archeology.

BIOMEDICAL ACOUSTICS (BA)

Acoustic Microscopy: Biomedical Applications
Use of high frequency ultrasound (100 MHz and above) for the characterization and investigation of biological cells and tissue.

Biophysical Mechanisms of Sonoporation
Processes responsible for the passage of large molecules across cell membranes or endothelial layers under the influences of ultrasound and microbubbles will be debated.

Organized by: John S. Allen

Organized by: Richard Manasseh
BIOMEDICAL ACOUSTICS (BA) (cont)

Delivery of Nucleic Acids (DNA, siRNA, antisense oligos)
Organized by: Tyrone M. Porter

High-Frequency Ultrasound (20-80 MHz)
Organized by: Michael L. Oelze

Ultrasound Tomography
Organized by: Yun Jing

EDUCATION IN ACOUSTICS (ED)

Take 5's
Organized by: Andrew C. Morrison

Tools for Teaching Advanced Acoustics
Organized by: David T. Bradley

Listen Up and Get Involved
(Joint with Women in Acoustics)
Organized by: Marcia J. Isakson, Tracianne B. Neilson

ENGINEERING ACOUSTICS (EA)

Acoustics for Navigation
Organized by: Rob White

Active and Passive Control of Fan Noise
Organized by: Anthony Gérard, Alain Berry

Computational Methods in Transducer Design, Modeling, Simulation, and Optimization
Organized by: Daniel M. Warren

Directional and Non-Directional Microelectromechanical Microphones
Organized by: Gary W. Elko

Fiber Optic Sensors for Seismic Sensing
(Joint with Underwater Acoustics)
Organized by: R. Daniel Costley, Daniel Finfer

Harmonic Distortion Measurements
Organized by: Allan J. Zuckerwar

Non-Contact Ultrasonic Methods
Organized by: Michael Haberman, Nico Declercq

DESCRIPTIVE SENTENCES

Novel ultrasound-based technologies, techniques, and vehicles for noninvasive ultrasound-mediated delivery of nucleic acids for modification of cells, protein expression, and signal pathways at the genetic level.

Specific clinical and pre-clinical applications of high frequency ultrasound along with descriptions of the latest technologies.

Recent theoretical and experimental efforts that develop ultrasound tomography for medical imaging.

For a Take-5 session no abstract is required. We invite you to bring your favorite acoustics teaching ideas. Choose from the following: short demonstrations, teaching devices, or videos. The intent is to share teaching ideas with your colleagues.

Animations, demonstrations, and other educational approaches for teaching acoustics at the advanced undergraduate and graduate level.

Acoustic demonstrations for middle- and high-school aged Girl Guides of Canada.

Systems and methods for using acoustics, whether actively generated or passively sensed, to assist in navigation of autonomous, semi-autonomous, or human controlled robots and vehicles. Papers are invited that explore transducers, algorithms and signal processing methods, or fully integrated systems.

Fan noise is one of the most challenging and ubiquitous of noise sources. Active and passive control approaches have been proposed during the last decades to overcome this problem. Analytical, numerical and experimental works are welcome.

Novel and unique applications of computation and simulation for improved understanding of electroacoustic transducers and their interaction with their acoustic environment.

Overview of needs, requirements and techniques for directional MEMS microphones.

Fiber optic sensing including, but not limited to, Rayleigh backscatter configurations. Topics of interest include transduction mechanisms, sensitivity, comparisons of different fiber optic cable configurations, and new developments.

Techniques and applications of harmonic distribution measurements in loudspeakers, microphones, and underwater transducers

Contributions from those researching novel non-contact ultrasonic sensors and methods for material characterization and inspection of structures.
ENGINEERING ACOUSTICS (cont)

Sound Field Control in the Ear Canal
Organized by: Pablo Hoffman

MUSICAL ACOUSTICS (MU)

Aeroacoustics of Wind Instruments and Human Voice
(Joint with Signal Processing in Acoustics)
Organized by: Shigeru Yoshikawa, Xavier Pelorsen

Measurements, Modeling, and Simulations of Brass Instruments
Organized by: James W. Beauchamp, Wilfried Kausel, Thomas R. Moore

Perception and Orchestration Practice
(Joint with Psychological and Physiological Acoustics)
Organized by: Stephen McAdams

Player/Instrument Coupling
(Joint with Psychological and Physiological Acoustics)
Organized by: Gary P. Scavone,

Transient Phenomena in Wind Instruments: Experiments and Time Domain Modeling
Organized by: Murray Campbell, Stefan Bilbao

NOISE (NS)

Advanced Hearing Protection and Methods of Measurement
Organized by: Jérémie Voix, Christian Giguère, Elliott H. Berger

Children's Perception of Noise
Organized by: Kerstin Persson Waye, Janina Fels

Community Noise
Organized by: Eric L. Reuter

Community Response to Low-Amplitude Sonic Booms
Organized by: Alexandra Loubeau, Juliet Page

Current US and Canadian Noise Standards
(Joint with ASA Committee on Standards)
Organized by: Richard L. McKinley

DESCRIPTIVE SENTENCES

Focused on state-of-the-art techniques for recording and controlling sound pressure at the eardrum and along the ear canal, this session encompasses measurement techniques, modeling and numerical simulations of ear canal acoustics, and research on middle ear functioning that may be informed from ear canal measurements.

Simulations, visualizations, and measurements of aeroacoustic phenomena in wind instruments such as flutes, pipe organs, reed woodwind, and brasswinds, as well as in human voice (speech and singing).

All aspects of measuring, modeling, and simulation of brass wind instruments, with an emphasis on comparing the results of models and simulations with measurements.

Survey of different perceptual approaches that could contribute to a psychoacoustic foundation for a theory of orchestration practice. Issues include the perception of instrumental blends, the role of timbre in auditory scene analysis, timbre as a structuring force in musical form, and the role of orchestration in evoking emotion.

Analyses of the interaction of music instrument players and their instruments, such as upstream/downstream air column coupling in wind instruments or hand/bow/string interactions in string instruments.

Experimental and computational studies of non-stationary aspects of wind instrument behavior, including starting and ending transients, opening and closing finger holes, using piston or rotary valves, vibrato, lip slurs and glissandos.

Current research activities on hearing protection from engineering and design to field studies on their performance, including advanced acoustical test fixtures (ATFs), measurements for impulsive noise conditions, recent MIRE technology, regulatory matters, and related issues.

Emerging results on children-specific aspects of perception and reaction to noise.

Policy, research, and case studies related to the evaluation and abatement of community noise.

All aspects of planning, execution, and data analysis for NASA's WSPR (Waveforms and Sonic Boom Perception and Response) project on community response to low-amplitude sonic booms. Topics include low-boom flight planning and execution, subject recruitment and subjective data collection, sonic boom measurements, subject noise exposure prediction and experimental design, and subjective data analysis.

Noise and noise measurement standards are important tools in noise control and mitigation. Papers in this session will present and review current US and Canadian noise standards and their application and use.
NOISE (NS) (cont)

Effects of Noise on Human Performance and Comfort
(Joint with Architectural Acoustics and Psychological and Physiological Acoustics)
Organized by: Lily M. Wang

Future of Acoustics
(Joint with Animal Bioacoustics, Acoustical Oceanography, Underwater Acoustics, and Signal Processing in Acoustics)
Organized by: Brigitte Schulte-Fortkamp, Michael J. Buckingham

International Aviation Noise Standards
(Joint with ASA Committee on Standards)
Organized by: Victor W. Sparrow

Soundscape and Its Application
(Joint with Architectural Acoustics)
Organized by: Brigitte Schulte-Fortkamp

Urban Acoustics
Organized by: J. L. Bento Coelho, Christian Popp

Wind Turbine Noise
(Joint with ASA Committee on Standards, Engineering Acoustics, and Structural Acoustics and Vibration)
Organized by: Nancy S. Timmerman, Paul Schomer, Sheryl Grace

PHYSICAL ACOUSTICS (PA)

Acoustics in Microfluidics and for Particle Separation
(Joint with Biomedical Acoustics)
Organized by: Lawrence A. Crum, Michel Versluis, Yong-Joe Kim

Borehole Acoustics Logging for Hydrocarbons Reservoir Characterization
Organized by: Said Assous, Weichang Li

Nanofluids
Organized by: Srikar Vegallatore

Chemical and Non-Medical Biological Effects of Ultrasound
Organized by: Kenneth Suslick, Hao Feng

PSYCHOLOGICAL AND PHYSIOLOGICAL ACOUSTICS (PP)

Binaural Hearing and Binaural Techniques
Organized by: Janina Fels, Pablo Hoffmann

Biomechanics of Hearing
(Joint with Animal Bioacoustics)
Organized by: Sunil Puria

Celebrating a “Long” Career: Explorations of Auditory Physiology and Psychoacoustics
Organized by: Jungmee Lee, Elizabeth A. Strickland

DESCRIPTIVE SENTENCES

Recent work on the effects of noise on human performance and comfort, in communities and built environments such as offices, hospitals, schools, etc.

The future of acoustics is a challenge for internationality and interdisciplinarity in science, advanced techniques, and applications regarding ecology and economy.

Lectures on the development of standards for the International Civil Aviation Organization’s Committee on Aviation Environmental Protection (CAEP).

Considering the soundscape approach in community noise regulations, city planning and product evaluation.

Assessment and management of the acoustic environment in urban areas, dealing with approaches and solutions to reduce, control and manage noise in cities.

Explore what is known about wind turbines and their audible and non-audible noise effects on humans and other creatures, and the governmental regulations which govern their siting.
Computational Modeling of Sensorineural Hearing Loss: Models and Applications
(Joint with Speech Communication)
Organized by: Michael G. Heinz, Torsten Dau

In Memory of Bertram Scharf: Five Decades of Contributions to Auditory Perception
Organized by: Mary Fiorentine, Huanping Dai

Learning by Listening: Education in Acoustics Based on Listening
Organized by: Kaoru Ashihara, Akira Nishimura

Multimodal Influences on Auditory Spatial Perception
Organized by: Shuichi Sakamoto, William L. Martens

Recent Trends in Psychoacoustics
Organized by: Hugo Fastl, Sonoko Kuwano

Array Signal Processing for 3-D Audio
Organized by: Yang Hann Kim, Jung-Woo Choi

Methods and Applications of Time-Frequency Analysis
(Joint with ASA Committee on Standards)
Organized by: Leon Cohen, Patrick J. Loughlin

Nearfield Acoustic Holography (NAH) Measurements and Applications
(Joint with Structural Acoustics and Vibration, Engineering Acoustics, and Physical Acoustics)
Organized by: Christopher Barber, Brian Fowler

Sampling Methods for Bayesian Analysis and Inversions in Acoustic Applications
(Joint with Acoustical Oceanography and Architectural Acoustics)
Organized by: Cameron Fackler, Ning Xiang

Auditory Feedback in Speech Production.
Organized by: Anders Lofqvist, Chuck Larson

Autocorrelation-Based Features for Speech Perception
Organized by: Yoichi Ando, Peter Cariani

Components of Informational Masking
Organized by: Gaston Hilkhuysen

Recent advances in studying the role of auditory feedback in speech production: Effects of subject populations, individual differences, neural mechanisms, and issues in signal processing.


Rather than opposing informational masking to energetic masking, this session attempts to detail its components.
SPEECH COMMUNICATION (SC) (cont)

Distinguishing Between Science and Pseudoscience in Forensic Acoustics
Organized by: Geoffrey Stewart Morrison, Joseph Campbell

Flow, Structure, and Acoustic Interactions During Voice Production
Organized by: Scott Thomson

Imitation, Accommodation, and Convergence in Speech Communication
Organized by: Molly E. Babel, Kuniko Nielsen

Mixed Effects Modeling: Applications and Practice in Speech Research
Organized by: Christian DiCanio, Benjamin Munson

Variability in Speech Intelligibility: Behavioral and Neural Perspectives
Organized by: Rajka Smiljanic, Bharath Chandrasekaran

STRUCTURAL ACOUSTICS AND VIBRATION (SA)

Acoustic Metamaterials
(Joint with Noise, Engineering Acoustics and Physical Acoustics)
Organized by: Dean E. Capone, Yun Jing

History and Application of Constrained Layer Damping
Organized by: Benjamin M. Shafer

Measurement and Modeling of Structures with Attached Noise Control Materials
Organized by: Noureddine Atalla, Franck Sgard

Memorial Session in Honor of Miguel Junger
Organized by: David Feit, Joel M. Garrelick

Noise Control Methods for Composite Structures
(Joint with Engineering Acoustics and Noise)
Organized by Gopal P. Mathur

UNDERWATER ACOUSTICS (UW)

Arctic Acoustics and Applications
(Joint with Acoustical Oceanography)
Organized by: Juan I. Arvelo, Stan E. Dosso

Physical mechanisms and model validation of sound and seismic interactions with the Arctic ice cap. Ice rheology factors affecting sound and sea surface wave interactions with the marginal ice zone. Acoustic applications include under-ice resource exploration, geophysical surveys, acoustic navigation and communications, environmental monitoring and remote sensing.
UNDERWATER ACOUSTICS (UW) (cont)

Distributed Acoustic Sensing (DAS) via Fiber Optic Cable
(Joint with Engineering Acoustics)
Organized by: Daniel Finfer, Emery Ku, R. Daniel Costley

Seabed Scattering: Measurements, Modeling and Mechanisms
Organized by: Charles Holland, Gavin Steininger

Sparse Process Modeling Techniques for Acoustic Signal Processing
(Joint with Signal Processing in Acoustics)
Organized by: Geoffrey F. Edelmann, Paul J. Gendron

Using Graphic Processing Units for Computationally Intensive Applications in Acoustic Modeling and Signal Processing
(Joint with Signal Processing in Acoustics)
Organized by: Paul Hursky

DESCRIPITIVE SENTENCES

Distributed acoustic sensing (DAS) makes it possible to perform vibroacoustic measurements using only fiber optic cable; this is done in the absence of discrete sensing stations. This session will explore emerging applications for this exciting new technology.

Scattering from the seabed, either from its interface or volume, affects sonar performance, as well as complicates seabed parameter estimation using acoustic methods. This session features measurement and modeling advances over a wide range of frequencies, including ability to separate scattering mechanisms.

Models and methods that leverage sparsity either for computational savings or for parsimonious statistical representation are explored for their improvements to acoustic signal processing. Applications range from sparse sampling and acoustic field encoding to spectral estimation, array processing, component analysis, and broadband multipath channel estimation.

New multi-core hardware architectures and software infrastructures to support them are making parallel computing very accessible at modest cost. This session will feature work on adapting computationally demanding modeling and signal processing tasks to take advantage of various parallel architectures, such as cloud computing, computing clusters, multi-core CPUs, multi-core graphic processing units (GPUs), DSP chips, and FPGAs.