

TECHNICAL PROGRAM AND SPECIAL SESSIONS

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, 13-17 May 2019.

Every effort will be made to schedule contributed abstracts in accordance with author and Organizing 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.

Special sessions described below are planned for the meeting. Authors of invited papers must indicate the title of the special session in which they have been invited to participate when the abstract is submitted. 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)

Future Directions in Acoustical Oceanography
Organized by: John Colosi, Timothy Duda

ANIMAL BIOACOUSTICS (AB)

Bioinspiration and Biomimetics in Acoustics
(Joint with Signal Processing in Acoustics)
Organized by: Rolf Müller

Understanding Animal Song
(Joint with Signal Processing in Acoustics, Acoustical
Oceanography, Speech Communication, Underwater Acoustics)
Organized by: John Hildebrand

ARCHITECTURAL ACOUSTICS (AA)

Higher Education Schools of Music
(Joint with Musical Acoustics, Education in Acoustics)
Organized by: Brian Corry, Kirsten Hull

Integrated Approach to Speech Privacy
(Joint with Noise, Signal Processing in Acoustics, Speech
Communication)
Organized by: Kenneth W. Good Jr., Eric Reuter

Libraries, Media Centers, and Similar Spaces
(Joint with Noise)
Organized by: K. Anthony Hoover, Damian Doria

Methods and Techniques Used for Simulation of Room
Acoustics
(Joint with Signal Processing in Acoustics, Noise)
Organized by: Bruce C. Olson, Ana Jaramillo

Restaurant Acoustics
(Joint with Noise, ASA Committee on Acoustics)
Organized by: Klaus Genuit, Kenneth W. Good Jr.,
Brigitte Schulte-Fortkamp

Room Acoustics Modeling and Auralization
(Joint with Signal Processing in Acoustics)
Organized by: Lauri Savioja, Ning Xiang

DESCRIPTIVE SENTENCES

New observational or theoretical areas of research in acoustical oceanography

Technical acoustic systems that mimic or are inspired by bioacoustical systems found in nature as well as pertinent fundamental research

Songs are patterned sequences of sound, and are made by animals in both marine and terrestrial settings. This session explores the causes and consequences of song production in a variety of animals taxa

Case studies of higher education schools of music work completed since 2008, discussing the school's music program, the problems that existed and the solutions implemented in the renovated or new building

Speech Privacy for confidentiality and/or distraction is too often approached from a single solution perspective. This session will not only explore the individual parts that contribute to speech privacy but also explore the interaction for a complete solutions

All aspects of acoustics related to libraries and media centers

Strategies and best practices in the use of modern simulation tools in the design process.

Data collection and analysis on noise levels and quality of environments

How to obtain room acoustic responses either by modeling or measuring, and how to make those responses audible

BIOMEDICAL ACOUSTICS (BA)

Cardiovascular Ultrasound: Imaging and Therapy
(Joint with Signal Processing in Acoustics)
Organized by: Kevin Haworth, Jonathan Kopechek

Interaction of Light in Ultrasound
(Joint with Signal Processing in Acoustics, Physical Acoustics)
Organized by: E. Carr Everbach

Inverse Problems in Biomedical Ultrasound
(Joint with Signal Processing in Acoustics, Physical Acoustics)
Organized by: T. Douglas Mast

Lung Ultrasound and Tissue Stiffness Method
(Joint with Signal Processing in Acoustics)
Organized by: Libertario Demi, Xiaoming Zhang

COMPUTATIONAL ACOUSTICS (CA)

Finite Difference Time Domain Method Across Acoustics
(Joint with Biomedical Acoustics, Physical Acoustics, Underwater
Acoustics, Signal Processing in Acoustics, Structural Acoustics and
Vibration)
Organized by: Michelle Swearingen, Jennifer Cooper,
Subha Maruvada

INTERDISCIPLINARY (ID)

Graduate Studies Poster Session
(Joint with Student Council)
Organized by: Trevor Jerome

Promoting Student Publishing Success
(Joint with Education in Acoustics)
Organized by: Kent Gee, Michael Haberman, Rajka Smiljanic, Anders
Lofquist

MUSICAL ACOUSTICS (MU)

Bluegrass Music and Related Instruments
Organized by: Whitney Coyle

Polyphonic Pitch Perception and Analysis
(Joint with Psychological and Physiological Acoustics,
Signal Processing in Acoustics)
Organized by: Jonas Braasch, Torben Pastore

Transient Phenomena in Wind Instruments
(Joint with Signal Processing in Acoustics)
Organized by: Vasileios Chatziioannou

NOISE (NS)

Acoustic Vehicle Alerts: Effects on Soundscape, Quality of Life, and
Traffic Safety
(Joint with Psychological and Physiological Acoustics)
Organized by: Jeanine Botta, Brigitte Schulte-Fortkamp

DESCRIPTIVE SENTENCES

Latest advances in applying ultrasound for the diagnosis and treatment of cardiovascular diseases. Topics will span basic science investigations through clinical application

Interaction of light with ultrasound, including photoacoustics and acousto-optic imaging, in biomedical ultrasound applications

Use of ultrasound data to quantify physical properties of acoustic systems, including problems in tomography, elasticity imaging, and characterization of ultrasonic sources and scatterers, with applications in biomedical diagnosis and therapy

Scientists, researchers, physicians, research fellows and students exchange and promote their research in two focused areas: lung ultrasound and tissue stiffness method. Fundamental research and clinical use of lung ultrasound will be discussed. All imaging modalities and techniques for measuring tissue stiffness will be discussed. Fundamental research, translational clinical research and clinical applications are welcome

Similarities and differences among implementations of the FDTD method for a broad variety of applications and propagation environments

Professors and educators are encouraged to submit abstracts covering graduate programs involved in the study of acoustics for presentation at a poster session. Submissions will highlight what each institution has to offer a prospective student

Ways to help mentor and encourage students to publish

Exploration of the unique traditions of bluegrass music and the acoustics of the musical instruments traditionally used in bluegrass music

Perceiving pitches of multiple sources, the role of pitch in source segregation and the modeling of complex pitch phenomena

Analyses of non-stationary phenomena that take place during wind instrument performance. Computational and experimental studies of player-instrument interaction including articulation, vocal tract effects, lip slurs

An exploration of vehicle alerts such as horn sounds and electronic signals that serve as status reports throughout shared spaces including residential neighborhoods, urban settings, and national parks

NOISE (NS) (continued)

Acoustics of Healthcare Facilities
(Joint with Architectural Acoustics, ASA Committee on Standards)
Organized by: Jay Bleifnick

Advances and Applications in Sound Quality Metrics
Measurements
(Joint with Signal Processing in Acoustics, Psychological
and Physiological Acoustics)
Organized by: Hales Swift, Patricia Davies

Increasing Noise Awareness in Society
(Joint with Education in Acoustics)
Organized by: Brigitte Schulte-Fortkamp, William J Murphy

Noise at Sporting Events and Sports Venues
(Joint with Architectural Acoustics, Structural Acoustics)
Organized by: Daniel A. Russell, William J. Murphy

Soundscape and its Application Based on the New Standard
(Joint with Architectural Acoustics, ASA Committee on
Standards, Animal Bioacoustics)
Organized by: Brigitte Schulte-Fortkamp, Klaus Genuit,
Bennett Brooks

Structure-Borne Noise in Buildings and What We Can Do
About It
(Joint with Architectural Acoustics, Structural Acoustics and
Vibration, ASA Committee on Standards)
Organized by: James Phillips, Bonnie Schnitta

PHYSICAL ACOUSTICS (PA)

Acoustofluidics
(Joint with Engineering Acoustics, Biomedical Acoustics)
Organized by: Max Denis, Kedar Chitale, Charles
Thompson

Battlefield Acoustics
(Joint with Signal Processing in Acoustics, Structural Acoustics
and Vibration, Noise, Psychological and Physiological Acoustics,
Biomedical Acoustics, Speech Communication)
Organized by: Gregory Lyons, W. C. Kirkpatrick Alberts, II

Infrasound
(Joint with Signal Processing in Acoustics)
Organized by: Roger Waxler, Philip Blom

Nonlinear Acoustics
(Joint with Noise)
Organized by: Won-Suk Ohm, Kent Gee

On His 100th Birthday, Isadore Rudnick Speaks for Himself
(Joint with Archives and History, Education in Acoustics)
Organized by: J. D. Maynard

PSYCHOLOGICAL AND PHYSIOLOGICAL ACOUSTICS (PP)

Acoustics Outreach to Budding Scientists: Planting Seeds
for Future Clinical and Physiological Collaborations
(Joint with Education in Acoustics)
Organized by: Kelly Whiteford, Anahita Mehta

DESCRIPTIVE SENTENCES

Current trends and new advancements in acoustics within hospitals
and healthcare facilities

Recent activities in sound quality metric development as well as their
application and related matters of policy or standardization

Ways in which the awareness by the public about the effects and
influence of noise on society can be increased

Noise measurements and/or models involving sporting events and
sports venues (professional, amateur, and recreational). Noise levels
at sporting events and hearing health concerns for players, referees,
and spectators. The impact of noise from sporting events on
neighboring residential communities

Part 2 of the Soundscape standard is now available as a Technical
Specification. Respective applications will be introduced

Interior noise from sources of vibration within and without buildings:
what causes it, how does it get there, how is it predicted and
measured, and how we control it

Exploring the science, engineering, and use of micro- to nanoscale
acoustofluidics

Challenges in acoustics encountered in complex military environments

Presentations on the generation, propagation and detection of
atmospheric infrasound, as well as on applications to geophysics,
meteorological monitoring and security

Theory, measurements, and applications involving nonlinear acoustics

The significant value of Isadore Rudnick's ability to use demonstrations
to teach acoustics will be illustrated with the showing of a video of
Rudnick presenting remarkable stage demonstrations at a special
plenary session of an ASA meeting; a video of his research with
superfluid helium will also be shown

The goal of this invited session is to increase ASA attendance from
students and post docs whose work relates to both clinical and
physiology research

PSYCHOLOGICAL AND PHYSIOLOGICAL ACOUSTICS (PP) (cont)

Applications of Signal Detection Theory in Perception and Physiology
(Joint with Speech Communication, Signal Processing in Acoustics)
Organized by: Jennifer Lentz, Christopher Conroy

Context Effects in Speech Perception
(Joint with Speech Communication)
Organized by: Christian Stilp, Matthew Winn

Cultivating New Growth by Composting Old Ideas: Pruning the Deadwood from the Garden of Psychological and Physiological Acoustics
(Joint with Education in Acoustics)
Organized by: G. Christopher Stecker

Diversity in Auditory Perception and Speech Communication
(Joint with Speech Communication, Education in Acoustics)
Organized by: Kelly Whiteford, Anahita Mehta, Dom Bouavichith, Evelyn Hoglund

Physiology Meets Perception
(Joint with Speech Communication)
Organized by: Sarah Verhulst, Antje Ihlefeld, Anna Diedesch, Amanda Lauer

SIGNAL PROCESSING IN ACOUSTICS (SP)

Bayesian Inference in Acoustic Signal Processing
(Joint with Underwater Acoustics, Acoustical Oceanography, Noise)
Organized by: Ning Xiang, Zoi-Heleni Michalopoulou, Paul Gendron

Borehole Acoustics Logging for Hydrocarbons Reservoir Characterization
(Joint with Acoustical Oceanography, Physical Acoustics, Underwater Acoustics, Structural Acoustics and Vibration)
Organized by: Said Assous, R. Lee Culver

Reconfigurable Arrays for Adaptive Wave Guiding
(Joint with Engineering Acoustics, Physical Acoustics, Underwater Acoustics, Structural Acoustics and Vibration)
Organized by: Ryan Harné, Jeff Rogers

SPEECH COMMUNICATION (SC)

Acoustic Phonetic Properties of Infant-and-Child Directed Speech
(Joint with Psychological and Physiological Acoustics)
Organized by: Mark VanDam, Laura Dilley

Exploring the Interface Between Linguistic Processing and Talker Recognition
(Joint with Signal Processing in Acoustics)
Organized by: Rachel M. Theodore, Tyler K. Perrachione

Perception of Speech Directed Toward Infants and Children
Organized by: Mark VanDam, Linda Polka

DESCRIPTIVE SENTENCES

Session relating history of psychoacoustics to current work in physiological and psychoacoustical research and modeling, with a focus on the representation and perception of complex sounds

Examinations of different influences of context on speech recognition, from the acoustic to the psychological

Critical re-examination of long-standing ideas in the field and alternative considerations in the form of new frameworks, approaches, and interpretations

Diversity of factors that influence speech communication and perception with the goal to make progress toward ensuring that research populations discussed within ASA reflect the diversity of people in the general population

Recent research combining different physiological (e.g., neural correlates, otoacoustic emissions, or neural imaging) and/or behavioral approaches in the same species. Speakers come from a diverse range of research backgrounds and will discuss how the combination of different approaches in the same species benefits their research, ranging from auditory coding mechanisms and audiometry to speech intelligibility and attention

Incorporation of prior knowledge in acoustic inference and the computational methods necessary to bring acoustic observations and prior information together efficiently

Theory and methods of sediment inference from borehole logging acoustics

Design, modeling and experiments of reconfigurable arrays to steer and guide wave propagation and reception. Reconfiguration methods may include physical, signal or other novel reconfiguration techniques

Studies of the acoustic properties of the speech signal directed to infants and young children, especially how these properties may vary as a function of characteristics of the speaker and addressee, including but not limited to age, communication abilities, and language experience

The acoustic speech signal simultaneously cues a talker's communicative intent and the talker's identity; that is, from the same acoustic stream, listeners have access to both who is speaking and what she is saying. Current research on the interplay between these two aspects of speech acoustics, with a particular focus on highlighting lines of inquiry that span diverse populations and experimental approaches will be presented

Recent research addressing how infants and children respond to and benefit from infant-directed speech and how this is influenced by diverse factors including, age, language experience, testing methods, and specific properties of this speech register

STRUCTURAL ACOUSTICS AND VIBRATION (SA)

Acoustic Metamaterials
(Joint with Physical Acoustics, Signal Processing in
Acoustics, Noise, Architectural Acoustics)
Organized by: Christina J. Naify, Alexey S. Titovich

Novel Damping Treatments
(Joint with Engineering Acoustics, Noise, Architectural
Acoustics)
Organized by: Benjamin Shafer, Ben Beck, Hubert Seth Hall

Noise and Vibration in Rotating Machinery
(Joint with Engineering Acoustics, Noise)
Organized by: Robert M. Koch, Elizabeth Magliula

Smart Materials for Acoustics and Vibration
(Joint with Physical Acoustics, Signal Processing in
Acoustics, Architectural Acoustics)
Organized by: Kathryn Matlack, Bogdan Popa

Vibration Reduction for Extraordinarily Sensitive Applications
(Joint with Architectural Acoustics)
Organized by: James E. Phillips, Mohammad Afrough

UNDERWATER ACOUSTICS (UW)

Uncertainty in Propagation Prediction
(Joint with Physical Acoustics, Structural Acoustics and
Vibration, Acoustical Oceanography, Signal Processing in
Acoustics, Computational Acoustics)
Organized by: Jennifer Cooper, D. Keith Wilson

DESCRIPTIVE SENTENCES

Contributions on theoretical and computational analysis of new metamaterial structures, experimental validation, and characterization of prototype unit cells or bulk materials, and demonstrations of the uses for acoustic metamaterials

Focus on new and alternative strategies for decreasing vibrational energy in structural systems. Subtopics include the use and design of substructure oscillator arrays, intrinsic structural metamaterial-inspired optimally placed voids, the design and use of acoustic black holes, and piezo-based active damping

Experimental, analytical, and/or computational investigations into the sources of unwanted noise and vibration in rotating machinery possibly also including discussion of potential solution approaches and remedies

Contributions in the area of smart, adaptable, and/or programmable materials and structures to control and manipulate acoustic waves and vibrations. Topics of interest include tunable phononics and metamaterials, acoustical/vibrational energy harvesting materials or devices, smart materials with enhanced acoustic/vibration functionality, origami or shape-changing materials, and materials with time-modulated properties

Low frequency vibration reduction methods in highly sensitive spaces and others, including active damping, passive damping, suspension systems, vibration isolation systems, and other energy dissipating methods

Methods for assessing uncertainty and variability in sound propagation predictions for the ocean and atmosphere, as resulting from uncertainties/variabilities in the environmental inputs

OTHER TECHNICAL EVENTS AND INFORMATION

ULTRASOUND MODELING WORKSHOP

A 3-hour hands-on workshop using FOCUS, the 'Fast Object-oriented C++ Ultrasound Simulator' will be offered at the Louisville ASA meeting on Monday morning, 13 May. This workshop is sponsored by the Biomedical Acoustics Technical Committee and will be available to all who are interested. There is no fee to participate, however, you are asked to register online or use the printed registration form on page 21 at the time you register for the meeting.

OPEN MEETINGS OF TECHNICAL COMMITTEES

Technical Committees will hold open meetings on Tuesday, Wednesday, and Thursday evenings. These are working, collegial meetings. Much of the work of the ASA is accomplished by actions that originate and are taken in these meetings including proposals for special sessions, workshops, and technical initiatives. All meeting participants are cordially invited to attend these meetings and to participate actively in the discussions.

HOT TOPICS

A "Hot Topics" session sponsored by the Tutorials, Short Courses, and Hot Topics Committee will cover the fields of Physical Acoustics, Biomedical Acoustics, and Computational Acoustics.