

## DENVER SPECIAL SESSIONS

Session Title	Cosponsor(s)	Descriptive Sentence
<b>ACOUSTICAL OCEANOGRAPHY (AO)</b>		
Acoustic Sensing of Biological and Physical Processes in Littoral Environments Organized by: Megan Ballard, Kevin Lee		Topics related to the use of acoustics to sense biological and physical processes in littoral and estuarine regions; for example, those associated with marine vegetation, hydrodynamic events, seabed geological or sedimentary features and composition, the carbon cycle, ecosystem mapping, among others. Papers concerned with measurements, modeling, and inverse methods are welcomed
<b>ANIMAL BIOACOUSTICS (AB)</b>		
Acoustical Impacts and Monitoring Protocols Associated with Offshore Windfarms Organized by: Michael Stocker	NS, AO, UW	The global pivot away from hydrocarbon energy generation is driving a rapid shift to offshore windfarm development. As a consequence, large expanses of marine habitat will be rapidly transformed, with many unknown impacts on marine life across all taxa; from marine invertebrates, to fishes, to marine mammals. Exploration of efforts to understand these impacts and include baselining strategies, the use of longitudinal soundscape characterization, survey and installation noise impacts, and long-term impacts of chronic windfarm noise on marine habitat. Submissions addressing acoustic impacts of terrestrial windfarms on birds, bats, and terrestrial animals are also welcome
<u>Contributions of “Expert” Subjects to Animal Bioacoustics</u> Organized by: James Finneran, Dorian Houser <b>CANCELLED</b>	PP	Individual animals trained to participate in bioacoustic studies can establish working relationships with scientists that span years and even decades. Some of these “expert” subjects have made substantial contributions to the field of animal bioacoustics. Presenters review the lives and research contributions from animal collaborators that have made significant contributions to the research literature and the state of knowledge in animal bioacoustics
Open-Source and Free Tools for Bioacoustics Organized by: Xavier Mouy, Julie Oswald	AO, SP, UW	Open-source and free tools are changing the way bioacoustics data are collected, analyzed, stored, and shared. This session will highlight and discuss recent advances in open-source and free software and hardware developed for the marine and terrestrial environment

## ANIMAL BIOACOUSTICS (AB) (cont)

<p>Whitlow Au Memorial Session Organized by: Kelly Benoit-Bird, Marc Lammers, Wu-Jung Lee</p>	<p>AO, UW</p>	<p>Whitlow W.L. Au was pioneer of understanding the echolocation of dolphins and whales, former president of the Acoustical Society of America (ASA), first chairperson of ASA's Animal Bioacoustics Technical Committee, long-serving associate editor for ASA's journal, first silver medal recipient in Animal Bioacoustics, and Gold Medal honoree. Contributions related to any area of marine bioacoustics or biosonar are encouraged as in addition to his foundational work on dolphin sonar, Whit's work expanded our understanding of the broadband characteristics of snapping shrimp sounds, the songs of humpback whales, the signaling and foraging behavior of wild odontocetes, the echo characteristics of potential dolphin prey, hearing in marine mammals, and the distribution of marine life around the Hawaiian Islands</p>
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**ARCHITECTURAL ACOUSTICS (AA)**

<p>Acoustic Comfort in Healthcare Facilities Organized by: Lucky Tsaih, Joanne Solet</p>		<p>Acoustic comfort in healthcare facilities is an important sustainable design quality. Optimal acoustic comfort is a driver of patients' recovery through protecting sleep, communication and sense of wellbeing conveyed through respect from caregivers. Research papers and project case study presentations are invited through which to share experiences, lessons learned and impact of designing for acoustic comfort in healthcare facilities</p>
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<p>Advanced Modeling and Measurement of Sound Absorption Organized by: Mélanie Nolan, Ning Xiang, Peter D'Antonio</p>	<p>ASACOS, NS, PA, BA</p>	<p>Focus on topics related to the measurement and modeling of sound absorption and covers standardized procedures as well as alternative in-situ complex impedance measurements and upcoming methods</p>
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<p>Balancing Speech Intelligibility with Privacy for Indoor Spaces Organized by: Joonhee Lee, Kenneth W. Good, Jr., Roderick Mackenzie</p>	<p>NS, PP, SC</p>	<p>Current research or practice related to speech intelligibility, speech privacy (and interaction between the two) in the built environment will be presented</p>
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**ARCHITECTURAL ACOUSTICS (AA) (cont)**

<p>Courts and Municipal Buildings Organized by: Jessica Clements, Dennis Paoletti</p>	<p>ASACOS, NS</p>	<p>Architectural acoustic design aspects, design standards and requirements, challenges, and case studies of courts and municipal buildings including those of the federal, state, or local levels</p>
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<p>Music Education Facilities Organized by: Lauren M. Ronsse, Martin S. Lawless, Shane J. Kanter, David T. Carreon Bradley</p>	<p>MU, ED, NS</p>	<p>The life cycle, lessons learned, and key insights into buildings for music education. Hosted by the editors of the recent publication, Rooms for the Learned Musician: A 20-Year Retrospective on the Acoustics of Music Education Facilities</p>
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Outdoor Performance Facilities Organized by: Ted Pyper	NS	Focus on the study and design of outdoor performance facilities; the propagation of sound within these venues; and the isolation of sound between these venues and neighboring areas
<b>BIOMEDICAL ACOUSTICS (BA)</b>		
Bubble-Cell Interaction Organized by: Klazina Kooiman, Eleanor Stride	PA	Understanding bubble-cell interactions is crucial for ensuring the safety and efficacy of diagnostic and therapeutic applications of ultrasound. This session will explore how these interactions are affected by the acoustic field, microbubble formulation, and the tissue environment
For a Few Bubbles More: Recent Developments in Medical Ultrasound Organized by: John Allen, Mark Borden		Emerging areas of research in ultrasound contrast agents, cavitation for diagnostic and therapeutic purposes including theoretical, experimental and clinical advances
New Developments in Lung Ultrasound Organized by: Libertario Demi, Marie Muller		Design, testing and clinical application of ultrasound approaches for the diagnosis and monitoring of lung condition. Theoretical, experimental and clinical contributions will be accepted.
Passive Acoustics Mapping Organized by: Meaghan O'Reilly, Kevin Haworth, Michael Gray		Recent advances in the imaging of cavitation for guidance and analysis of ultrasound-mediated therapies
Sonochemistry Organized by: James Kwan	PA	Bring together experts in chemistry and cavitation to present recent advances in the field and bridge gaps of knowledge between the physics of cavitation and the subsequent radical chemistry that impacts everything from cancer therapies to greening chemistry
Superresolution Imaging Organized by: Jeffrey Ketterling, Michael Oelze	PA, SP	Emerging techniques involving super-resolution imaging including image processing methods, applications, and instrumentation
Ultrasound and Its Role in Powering, Sensing and Communicating for Medical and Non-Medical Applications Organized by: Michael Oelze, Inder Raj S. Makin	ED, PA	As in-body medical devices continue to expand in their scope and utilization, the role of ultrasound for powering devices, communicating between devices and external receivers and sensing within the body continues to grow
<b>COMPUTATIONAL ACOUSTICS (CA)</b>		
Application of Model Reduction Across Acoustics Organized by: Kuangcheng Wu, D. Keith Wilson, Sue Sung	SP, SA	Model reduction approaches to reduce computational time in analyzing large datasets, simplify large and complex numerical models, or perform high frequency, nonlinear, and transient analyses. These approaches may be based on physical insights, advanced numerical techniques, or ML/AI

Emerging Methods for Design and Optimization in Computational Acoustics Organized by: Jerry Rouse, Wilkins Aquino	SP, SA, PA, BA	Recent advances in optimization theory and algorithms, scientific computing, and computer hardware offer new opportunities to tackle very challenging acoustic design problems. Seeking researchers and practitioners having a common interest in design and optimization problems in the context of computational acoustics (broadly designed)
Finite and Boundary Element Methods Across Acoustics Organized by: Jennifer Cooper, Michelle Swearingen, Subha Maruvada	BA, PA, UW, SA, NS, MU, AA	Applications and model enhancements for finite and boundary element models in all applicable technical areas
<b>EDUCATION IN ACOUSTICS (ED)</b>		
Connecting Industry and Education Organized by: Jim DeGrandis, Daniel Russell	EA, AA	Case studies and examples of successful partnerships between industry and educational institutions. Internships, equipment donations, educational programs, mentoring, etc.
<b>ENGINEERING ACOUSTICS (EA)</b>		
Low Cost Acoustical Measurement Systems Organized by: Michael Haberman, Preston Wilson, David Brown, Daniel Russell	ED, AA, NS, PA	Contributions that describe novel, low-cost, experimental systems created for research or instructional purposes. Contributions with tutorial or research focus are accepted
Smart Metamaterials and Metastructures Organized by: Michael Haberman, Bogdan Popa	SA, PA	Contributions in the area of smart, adaptable, and/or programmable metastructures to control and manipulate mechanical waves. Topics of interest include reconfigurable phononics and metamaterials, acoustical/vibrational energy harvesting materials or devices, smart media with enhanced acoustic/elastic functionality, origami or shape-changing metastructures, and metastructures with time-modulated properties
<b>MUSICAL ACOUSTICS (MU)</b>		
Evolution and Maturation of Musical Instruments Organized by: Jonas Braasch, James Cottingham		Research that explores how and why musical instruments develop until they mature. Most orchestral instruments evolved over centuries until they matured in the 19th century and have not changed much since then. Factors that drive instrument design evolution and the rate of change are still not well understood
Strategies for Online and Hybrid Teaching of Musical Acoustics Organized by: Taffetta Elliott, Andrew Piacsek	ED	It is likely that many components of virtual classrooms and remote learning will continue and become integrated into regular teaching practice. This session will advance the conversation about effective practices for teaching musical acoustics developed over the past two years
<b>NOISE (NS)</b>		
Health Effects of Noise Organized by: S. Hales Swift, Lily Wang	PP	Papers related to physiological health outcomes due to noise exposure and the pathways connecting noise to health

Low-Frequency Sound Measurement and Its Standard/Limits Organized by: Walter Montano <b>CANCELLED</b>	EA, PA, SA, ASACOS	To determine a standardized way to measure, analyze and set limits to the low-frequency sound
Noise Impacts from Outdoor Entertainment and Sports Spaces Organized by: Bonnie Schnitta, Sarah Taubitz	AA	Measurement, regulation, and mitigation of noise impacts from outdoor entertainment and sports venues
Soundscape and Virtual Reality Organized by: Ming Yang, Brigitte Schulte-Fortkamp	AA, SP, CA, PP	Showcase the work done in the field of soundscape using virtual, augmented, and mixed reality technologies
Soundscape in the Built Environment Organized by: Bennett Brooks, Brigitte Schulte-Fortkamp <b>CANCELLED</b>	AA, ASACOS, PP	Applications of the soundscape technique on developing and existing buildings and their surroundings
Standards, Codes, and Criteria—Applications in the Real World Organized by: K. Anthony Hoover, Derrick Knight	AA, ASACOS	Application of standards, codes, and criteria can have many complications and challenges in the real world
Wind Turbine Noise Organized by: David Michaud, Mark Bastach, Norm Broner	PA, ASACOS, EA	Papers on wind turbine noise and the social impacts of noise from wind energy developments
<b>PHYSICAL ACOUSTICS (PA)</b>		
Advances in Sonochemistry Organized by: James Kwan	BA	Sonochemistry is undergoing a renaissance and this session aims to highlight recent advances in this field regarding new reactions, approaches, and understandings
Acoustic Remote Sensing in Urban Environments Organized by: Max Denis, Sandra Collier, D. Keith Wilson	CA, SP, AB, EA, NS, AA	Approaches that have been developed to determine the acoustic characteristics of the urban environment for robustly localizing remote sources, removal of noise and multipath distortion from signals
Machine Learning in Acoustic Metamaterials Organized: Feruza Amirkulova, Chengzhi Shi, Valerie Pinfield	SA, SP, EA, CA	Will discuss cutting-edge research on acoustic metamaterials, metasurfaces, and meta devices with advanced functionalities attained through the exploitation of the entire plethora of special effects, interactions, couplings, phenomena in acoustics, and application of machine learning and artificial intelligence techniques. This includes but not limited to classical machine learning methods as well recent advancements in Gaussian processes, generative modeling, deep learning, reinforcement learning, and multimodal learning.
<b>PHYSICAL ACOUSTICS (PA) (cont)</b>		
Meteorological Acoustics Organized by: Roger Waxler	NS	Will focus on applications of acoustical methods to the monitoring of meteorological phenomena

Progress in Sonic Boom Modeling, Processing, and Analysis on Community Response Organized by: Joel Lonzaga, Aaron Vaughn, Philippe Blanc-Benon	CA, NS, SP	Topics include all aspects of sonic boom such as propagation modeling, measurements, signal processing, and community annoyance. Papers related to the preparation for NASA's X-59 QueSST acoustic validation and subsequent community overflights are also welcomed
Sonic Boom Focusing Predictions Organized by: Alexandra Loubeau, Sriram Rallabhandi	NS, BA, CA	Will cover prediction of sonic boom waveforms within a focal zone due to an aircraft accelerating to supersonic speeds. A test case will be provided for participants to predict caustic geometry parameters, focused waveforms at the ground, and loudness metrics at specified locations
Vortex Beams and Radiation Torques Organized by: Likun Zhang, Chengzhi Shi	BA, SA	Recent advances on theory and applications of acoustic vortex beams and radiation torques
<b>PSYCHOLOGICAL AND PHYSIOLOGICAL ACOUSTICS (PP)</b>		
Age-Related Changes in Mechanisms of Speech Perception Organized by: Pamela Souza, Monita Chatterjee	SC	Studies of top-down and bottom-up mechanisms of speech perception in older adults, with consideration of the effects of hearing devices
<b>SIGNAL PROCESSING IN ACOUSTICS (SP)</b>		
Cognitive SONAR Organized by: David Hague, Ananya Sen Gupta, Wu-Jung Lee	UW, EA, PA, AB	Signal processing and machine learning aspects of an adaptive or "cognitive" engineered or biological sonar system and how such a system might exploit the existing domain knowledge of the physics of acoustic propagation and scattering
Model Based Signal Processing, Bayesian Learning, and Machine Learning Organized by: Ananya Sen Gupta, Ning Xiang	CA, UW, PA	Analysis methods of integrating model-based interpretation with machine learning techniques, acoustic applications of model-based signal processing, machine learning, including but not limited to Bayesian learning, prediction and inference, as well as the interface of acoustic propagation models with machine learning architectures
Reconfigurable and Programmable Arrays Organized by: Ryan Harne, Geoffrey Edelmann	UW, EA, PA, CA	Reconfigurable acoustic arrays are those able to dynamically tailor operating function in order to adapt to the changing environment or to command. This session will bring together researchers working in the wide range of programmable acoustic array systems, who feature innovative modeling, design synthesis, and experimental approaches to analyze the adaptive capabilities of reconfigurable arrays
<b>SPEECH COMMUNICATION (SC)</b>		

Children's Speech Intelligibility Organized by: Mary Flaherty, Pasquale Bottalico		The main factors affecting speech intelligibility are the signal quality, the transmission path between speaker and listeners, and the listener's characteristics, among them age. Children have greater difficulty than adults when understanding speech in the presence of competing sounds, and this can impact their development. This session aims to highlight recent advances in children's speech intelligibility research
Perspectives on Long-Distance Coarticulation Organized by: Melissa Redford, Douglas Whalen		Long-distance coarticulation with an emphasis on developmental, psychological, and cross-linguistic perspectives
Race, Racialization, and Racism in Speech Perception Organized by: Kristin Van Engen, Benjamin Munson		Bringing together scholars of speech and language as well as social and cognitive psychology, this session will consider how race affects the perception of speech and how speech affects the perception of race
<b>STRUCTURAL ACOUSTICS AND VIBRATION (SA)</b>		
Acoustic Metamaterials Organized by: Christina Naify, Alexey Titovich, Bogdan Popa, Kayla Petrover	EA, PA	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
Dynamic Substructuring Techniques and Their Application to Structural Acoustics Organized by: Anthony Bonomo, Andrew Wixom, Matthew Luu	CA, EA	Explores the application of dynamic substructuring methods to structural acoustics and vibration problems. Topics include modeling and simulation, experimental and hybrid substructuring, and the challenges encountered when applying substructuring methods to acoustic-structure interaction problems
Nonlinear Metamaterials and Phononics Organized by: Ganesh Patil, Samuel Wallen	PA	Recent advances in acoustic and elastic metamaterials leveraging nonlinearity to enhance wave propagation properties and/or demonstrate enriched dynamic phenomena, including new or improved analytical, computational, and experimental methods and designs
Willis Coupling in Acoustic and Elastic Media Organized by: Stephanie Konarski, Caleb Sieck, A. J. Lawrence	PA	Theoretical, numerical, and experimental research on acoustic and elastic metamaterials displaying Willis coupling
<b>UNDERWATER ACOUSTICS (UW)</b>		

<p>Collaborative Measurements in Underwater Acoustics—A Memorial Session for John R. Preston Organized by: David L. Bradley, Dale Ellis, Paul Hines</p>	AO	<p>Collaborative measurements are a crucial part of underwater Acoustics research driven by the large resource requirements to conduct them, and the technical breadth of data that requires both experimentalists and theorists to interpret. Work from major collaborative field trials that were supported by the rapid development of the towed acoustic line array will be highlighted. Presentations on historical trials that have resulted in significant advances, recent trials whose results are currently being interpreted and published, and the trials currently being planned that will ensure continuing advancement in our understanding of the underwater domain are welcome</p>
<p>Understanding and Representing Uncertainty in Underwater Acoustic Models Organized by: Sean Pecknold, Martin Siderius</p>	AO	<p>Characterizing and representing uncertainty in both underwater acoustic model outputs and environmental inputs, and on understanding and describing the transfer of uncertainty through the ocean/acoustic model system</p>