NASHVILLE SPECIAL SESSIONS

Primary Sponsoring Committee	Session Title	Cosponsors	Descriptive Sentence
Acoustical Oceanography	Acoustical Remote Sensing, Navigation, and Passive Monitoring in the Polar Ocean Organized by: Matthew Dzieciuch, Hanne Sagen, Peter Worcester	UW, SP	Acoustical remote sensing, navigation, and passive monitoring in the polar ocean
Acoustical Oceanography	Acoustical Sensing of Ocean Turbulence, Mixing, and Stratification Organized by: John Colosi, Chris Bassett		Focused on the development of acoustical sensing and inversion techniques for quantifying ocean turbulence, mixing, and stratification in the surface and bottom boundary layers as well as the ocean interior
Acoustical Oceanography	Shelfbreak Acoustics Organized by: Y. T. Lin, Martin Siderius, Andone C. Lavery	UW, AB	Session welcomes papers focusing on the use of sound to investigate the biology, geology and physical oceanography in shelfbreak regions, acoustic effects of the environmental variability, passive acoustic monitoring (e.g. for marine mammals), and shelfbreak soundscapes
Animal Bioacoustics	Soundscapes Organized by: Kaitlin Palmer	PP	What soundscape changes were observed during COVID-19 and what have been the impacts on bioacoustic communities?
Animal Bioacoustics	Mechanisms in Speech and Animal Communication Organized by: Benjamin Taft	SC, PP, SP	What acoustic features might serve as reliable indicators of unusual or important sound-generating structures or movements?
Animal Bioacoustics	Plant and Agroacoustics Organized by: Aaron Thode		Studies of the use of sound in agriculture, including how sound or vibration is used by plants
Architectural Acoustics	Acoustical Challenges in Small Rooms Organized by: Joseph Keefe		Challenges encountered in rooms that are smaller than desired, with descriptions of problems and solutions. Examples may include residential spaces, music practice/rehearsal rooms, recording environments, etc. "Small" is relative to what is typical/ideal for a space, and not intended to be absolute
Architectural Acoustics	Architectural Acoustics and Audio - Even Better Than the Real Thing Organized by: K. Anthony Hoover, David Conant, David Woolworth	AA, NS, PP	Rooms, systems, and techniques for adapting, enhancing, and fictionalizing acoustic traits
Architectural Acoustics	Recording Studios Organized by: Bennett Brooks, K. Anthnony Hoover	MU, SP	Trends and advancements in recording studios, through theory, analysis, design, testing, perceptions and case studies
Architectural Acoustics	Show Your Data: Architectural Acoustics Metrics Organized by: Ana Jaramillo, Bruce Olson	ASACOS	It can be measurement or simulation data, or a comparison of both. Share interesting findings from research or applied work
Architectural Acoustics	Sound Transmission and Impact Noise in Buildings Organized by: Matthew Golden, Benjamin Shafer	NS, ASACOS	Advancements in sound transmission and impact noise in the built environment
Architectural Acoustics	Sound with Context: Cultural Heritage Acoustics Organized by: Miriam A. Kolar, David Lubman	AA, NS	Cultural heritage acoustical studies are most accurate when informed by their past and present uses, contributing to archaeological and historical research, site preservation and reconstruction, and enabling new forms of experiential public interfaces

Biomedical Acoustics	Brain Theranostics and Immunomodulation Organized by: Charles Caskey, Hong Chen		Will integrate ultrasound therapy and diagnosis of brain diseases
Biomedical Acoustics	Deep Learning in Ultrasound Imaging and Tissue Characterization Organized by: Aiguo Han, Xiaoming Zhang	CA, SP	Session intends to cover applications of deep learning in biomedical ultrasound imaging (data acquisition, image formation, beamforming, image quality improvement, etc.) and tissue characterization (biomarker extraction, diagnosis, etc.)
Biomedical Acoustics	Detection and Quantification of Bubble Activity in Therapeutic Ultrasound Organized by: Adam Maxwell, Eli Vlaisavljevich		Will focus on methods to detect the presence of bubbles and quantify their spatial and temporal behavior during therapeutic ultrasound exposures
Biomedical Acoustics	Look How Big You've Gotten! A Story of Droplets and Ultrasound Organized by: Kevin Haworth, Mario Fabiilli		Will highlight recent advances in the basic science of phase-shift emulsions and acoustic droplet vaporization as well as their biomedical application
Biomedical Acoustics	Novel Ultrasound Beamforming Techniques and Their Applications Organized by: Jian-yu Lu, Hervé Liebgott	SP	Beamforming techniques are the bases of various medical, NDE, and other applications in acoustics. Novel beamforming techniques including plane wave, synthetic aperture, Fourier-based image reconstructions, limited-diffraction beams, and other novel beamforming techniques are finding applications in various areas including biomedical ultrasound
Biomedical Acoustics	Image Quality Assessment for Modern Imaging Organized by: Brett Byram	SP	Recent advanced imaging methods incorporate non-linear processing, which means that conventional image quality metrics are broken, and image quality assessment must be reconsidered.
Biomedical Acoustics	150th Anniversary Celebration of Paul Langevin: Inventor of Modern Ultrasound Organized by: Thomas Szabo, Francis Duck		Time to celebrate the achievements of Paul Langevin: the invention of high transmission ultrasound with piezoelectric pulse echo devices which led to medical ultrasound, sonar and many other applications
Biomedical Acoustics	Tribute to Fellows and Award Winners of the BATC: 2022 Organized by: Kenneth Bader		Session will include talks from new fellows/award winners of the BATC for the 2022 calendar year
Biomedical Acoustics	Ultrasound Brain and Super-Resolution Imaging Organized by: Chengzhi Shi	PA, SP	Will cover all topics on ultrasound brain imaging and super-resolution imaging
Computational Acoustics	Finite Difference Time Domain Methods Across Acoustics Organized by: Jennifer Cooper, Michelle Swearingen, Subha Maruvada	BA	Similarities and differences among FDTD methods and implementations for a broad variety of applications and propagation environments.
Computational Acoustics	Learning and Stochastic Modeling in Computational Acoustics Organized by: Wael H. Ali, Aaron Charous, Pierre F. J. Lermusiaux		Session emphasizes stochastic modeling, Bayesian and machine learning, and reduced-order approaches for both forward and inverse problems in all areas of computational acoustics.
Computational Acoustics	Numerical Approaches for Complex Media and Geometries Organized by: Z. Charlie Zheng, D. Keith Wilson	BA	Numerical approaches to calculating sound fields in complex media or with complex geometries.

Computational Acoustics	Physics-Informed Artificial Intelligence/Machine Learning for Acoustics Organized by: Amanda Hanford, Matthew Blevins, Brandon Lee	BA, SP	Physics-informed approaches to artificial intelligence and machine learning as appropriate to acoustical and noise applications.
Education in Acoustics	Connecting Industry and Education Organized by: Jim DeGrandis, Daniel Russell		Case studies and examples of successful partnerships between industry and educational institutions, internships, equipment donations, educational programs, mentoring, etc.
Engineering Acoustics	Audio Recording Technology and Engineering Organized by: Gary Elko	SP	Sound recording technology has benefitted greatly with the profusion of computational capabilities of computers and associated electronics. This has lowered the cost to the point where folks can now produce high quality recordings at their home. The session will invite recording engineers and sound effects plug-in manufacturers and possibly even musicians to discuss modern sound recording
Engineering Acoustics	Automotive Acoustics Organized by: Vahid Naderyan	CA, SA	Latest developments and innovations in automotive acoustics including the design and applications of acoustic components, measurement and simulation technologies in both exterior and interior of vehicles
Interdisciplinary	Graduate Programs in Acoustics Poster Session Organized by: Zane Rusk	Student Council	Poster session for academic institutions to present and detail their degree programs and student research opportunities relevant to acoustics
Musical Acoustics	Modeling and Simulation of Physical Effects in Sound Reproduction Organized by: Preston S. Wilson, Mark Rau		A survey of new methods for digital music production that incorporate simulated effects of physical sound reproduction, such as loudspeaker cabinets or microphone placement
Noise	Acoustics Design of Indoor and Outdoor Firing Ranges, and Protection from High Level Impulse Noise Organized by: William Murphy, Stephen Campbell, Cameron Fackler	PP	Acoustics design of indoor and outdoor firing ranges, and protection from high level impulse noise
Noise	Community Impacts Associated with Entertainment Sound Organized by: David Woolworth, Brandon Cudequest	PP	Sound related impacts of entertainment sound on communities: studies, analysis, solutions, non solutions and fantasies
Noise	Flanking Paths: Finding Them, Solving Them and Improvement in ASTC When You Do Organized by: Bonnie Schnitta		Those concerned with the acoustic value of a wall, floor, etc. are often disappointed in the low ASTC value that can occur in a partition with a lab tested high STC. This session will present methods to find flanking paths, methods to solve the flanking paths and resultant improvement in the ASTC
Noise	Jet and Launch Vehicle Noise Organized by: Alan T. Wall, Kent L. Gee, Carolin P. Lubert	CA, PA, SP, SA	Current practices and future plans for community noise testing and analysis methods, including both survey and noise dose estimation aspects

| Noise | Methods for Community Noise Testing and Analysis Organized by: Alexandra Loubeau | PP | Current practices and future plans for community noise testing and analysis methods, including both survey and noise dose estimation aspects |

Physical Acoustics	Acoustofluidics Organized by: James Friend, Charles Thompson, Kedar Chitale, Mark Meacham, Max Denis	BA	Sonochemistry is undergoing a renaissance and this session aims to highlight recent advances in this field regarding new reactions, approaches, and understandings
Physical Acoustics	Effective Medium Theories in Acoustics Organized by: Michael Muhlestein	SA, BA	Focused on methods of determining the effective material properties of complicated acoustical systems
Physical Acoustics	Frontiers of Resonant Ultrasound Spectroscopy and its Applications Organized by: Christopher Kube, Matthew Cherry, Rasheed Adebisi	SA	Session will bring together researchers and recent advances in the area of resonant ultrasound spectroscopy and resonance methods of solids
Physical Acoustics	Infrasound Organized by: Philip Blom, Gil Averbuch, Roberto Sabatini	CA	Highlights of recent infrasound and seismoacoustics research including source physics, signal propagation, analysis methods, sensors, and similar topics
Physical Acoustics	Interaction of Light and Sound Organized by: E. Carr Everbach, Jason Raymond	BA	Interaction of optical and acoustical systems, whether in biomedical applications such as photoacoustics or acousto-optics, or engineering applications such as fiberoptic hydrophones or remote acoustic sensing using optics
Physical Acoustics	My Favorite Homework Problems (Based on Measurements, Demonstrations, or Experimental Data) Organized by: Daniel Russell, Thomas Szabo, Preston Wilson	ED	Speakers will present descriptions of their favorite homework problems and/or classroom activities based on measured data from physical acoustics experiments or demonstrations. Talks will include descriptions of the demonstration or experiment that inspired the homework problem or activity, and how the measured data or the demonstration was incorporated into the homework problem or in-class activity
Physical Acoustics	Particle Velocity Sensing and Associated Signal Processing Organized bu: W. Kirk Alberts, Ning Xiang	SP	Methods to measure acoustic particle velocity, vibrational velocity, and signal processing tools to analyze information obtained from velocity sensors in air and other media, e.g. soil and water
Physical Acoustics	Ultrasonic Assessment of Properties in Complex Materials Organized by: Andrea Arguelles, Marie Muller	BA	Focuses on ultrasonic testing and modeling methods for characterization of complex material systems ranging from additively manufactured parts to biological media
Psychological and Physiological Acoustics	No special sessions planned		
Signal Processing in Acoustics	Active Control of Sound and Vibration Organized by: Yangfan Lui, Jordan Cheer	SA	Theories, algorithms, practical applications and technology commercialization related to active control of sound and vibration
Signal Processing in Acoustics	Dispersive Wave Signal Processing Organized by: Zoi-Heleni Michalopoulou, Julien Bonnel		Wave dispersion plays a critical role in numerous acoustics applications (biomedical ultrasound, ocean acoustics, geophysics, etc.). Identifying the components of broadband sound waves allows the extraction of important properties of the propagation medium and/or source. This session looks into the role of dispersion in several applications of acoustics and identifies acoustic signal processing techniques for the optimal extraction of information from the dispersive behavior of waves

Signal Processing in Acoustics	Signal Processing for Musical Audio Production Organized by: Scott Hawley		Presentations related to the manipulation of musical audio signals, including but not limited to: filters, audio effects, plugins, spectral and temporal processing, spatial audio, plugins, perceptual metrics, machine learning approaches, applications toward recording, mixing, mastering, live sound production, audio restoration, and more
Speech Communication	Acoustics and Communication in Healthcare Settings Organized by: Melissa Baese-Berk, Tessa Bent	AA, NS, PP	Will describe the soundscape in healthcare settings and describe how the acoustics of these settings impacts communication between patients and providers
Speech Communication	Bilingualism and the Brain Organized by: McCall E. Sarrett, Joseph C. Toscano	PP	Issues in speech communication become even more complex when language users are balancing multiple languages This special session examines the neural mechanisms subserving multilingual speech processing
Structural Acoustics and Vibration	Acoustic Metamaterials Organized by: Bogdan Popa, Alexey Titovich, Christina Naify	CA	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
Structural Acoustics and Vibration	Additive Manufacturing and Acoustics Organized by: Christina Naify, Michael Haberman, James Cottingham, John Granzow	EA	Highlights recent advancements that integrate additive manufacturing with acoustic and elastic wave propagation, including (but not limited to) new acoustic materials, devices, and characterization techniques
Structural Acoustics and Vibration	Fluid Structure Interaction Organized by: Benjamin Goldsberry, Micah Shepherd		Contributions on theoretical, experimental, and computational analysis of the coupling of acoustic and elastic waves, including the computation and/or measurements of the near and far field scattering, vibration, and radiation damping from fluid-loaded structures
Structural Acoustics and Vibration	Real-World Case Studies in Structural Acoustics and Vibration of Vehicles Organized by: Robert Koch, Shung H. "Sue" Sung		Real-world case studies in structural acoustics and vibration of vehicles
Structural Acoustics and Vibration	Surrogate and Reduced-Order Modeling for Structural Acoustics Applications Organized by: Anthony Bonomo, Stephanie Konarski, Ali Kanj	CA	Model order reduction (the development and deployment of models of reduced computational complexity) and surrogate modeling (the creation and utilization of cheap-to-evaluate "black box" models from experimental or simulated data) are two methods useful for overcoming the modeling and simulation challenges facing today's structural acoustics analyst. Topics include fast frequency sweeping, proper orthogonal decomposition, Kriging, machine learning applications, and others
Structural Acoustics and Vibration	Tunable Metamaterials Organized by: Ganesh Patil, Benjamin Goldsberry, Elizabeth Smith		Recent advances in manipulating wave propagation through acoustic and elastic metamaterials by means of active and/or passive mechanisms, including new or improved analytical, computational, and experimental approaches
Underwater Acoustics	Memorial Session for Lisa Zurk Organized by: Kathleen Wage, Martin Siderius	AO	Session honoring the research accomplishments of Lisa Zurk in underwater acoustics and signal processing. Topics include passive and active sonar detection, classification, localization and tracking. Much of her work focused on physics-based signal processing such as matched field processing and exploiting the waveguide invariant

Underwater Acoustics	Mud Acoustics Organized by: Charles Holland, Stan Dosso, Allan Pierce	AO	Mud is a complex mixture of clay platelets electrochemically connected in a variety of ways, organic matter, silt and sand particles and in some environments interstitial gas. This session encompasses theory, observations and analysis of acoustic propagation in muddy sediment fabrics
Underwater Acoustics	Updating Ocean Acoustic Situational Awareness with In-situ Measurements Organized by: Carolyn Binder	AO, CA	Understanding the ocean acoustic environment is a complex task. Ocean and acoustic propagation models are imperfect, though very useful for predicting the ocean acoustic environment and parameters of interest. Oftentimes, a single sound speed profile measurement in situ is used to provide acoustic situational awareness, but does not account for spatio-temporal changes. Employing in-situ measurements to update modeled predictions may provide an enhanced situational awareness. Possible topics in this session could include data assimilation to improve propagation models, taking direct measurements of the channel to update propagation models in near real time, using ambient noise measurements to update terms in the sonar equation, or updating machine learning algorithms with environment-specific data