

# ACOUSTICS IN FOCUS TECHNICAL SESSIONS

Session Type	Title	Description	Cosponsor	Organizers
<b>ACOUSTICAL OCEANOGRAPHY</b>				
Focused Presentations	Long Term Acoustic Time Series in the Ocean	This session will highlight the new knowledge in oceanography and ocean dynamics harvested from long time series of acoustic measurements. Acoustic measurements relating to any aspect of the ocean floor, water column, or surface are welcome.	UW, AB, SP	Jennifer Miksis-Olds Joe Warren
<b>ANIMAL BIOACOUSTICS</b>				
Focused Presentations	Fish Bioacoustics: The Past, Present, and Future	Fish produce a significant amount of communicative noise, yet remain somewhat obscure in the bioacoustics literature. In this session we will showcase research focusing on fish bioacoustics, and explore the benefits of using fish as study systems to answer a variety of bioacoustics questions.		Nora Carlson
Focused Presentations	Session in Memory of Thomas F. Norris	This session will be a memorial to Thomas F. Norris. We invite colleagues to present on projects which Tom was involved with, topics that he was passionate about, or from field sites where he frequented. Some examples include bioacoustics, marine mammal signal classification, COTS hardware development like the MicroMars and Garmin tags, research in the Marianas, Hawaii, Vietnam, the Galapagos, Brazil, California, Guam, Alaska, and Canada; killer whales in Washington, ship shock trials, and aerial surveys. We hope that shared memories and reflection will offer healing through collegial science pursuits.	AO, UW	Kerri Seger
<b>ARCHITECTURAL ACOUSTICS</b>				
Focused Presentations	Acoustics in Coupled Volume Systems	Investigations on acoustics in coupled volume systems including, but not limited to, performance venues, worship spaces, and a wide range of built environments. Research methods in theoretical analysis, numerical modeling, and experimental studies for both objective and subjective evaluations, and beyond.	MU, NS, SA, CA	Michael Vorländer Ning Xiang
Panel Discussion	Advances in Architectural Acoustics for Cultural Heritage Research and Preservation	Cultural heritage implies risk management entangled with politics of responsibility and access. We bring together leading researchers to discuss precedents, challenges and innovations in the documentation and preservation of architectural acoustics in heritage sites.		David Lubman Miriam Kolar
Panel Discussion	Noise and Vibration Control in 2021	We'll discuss about emerging trends that consultants are seeing across the USA and shifts in the consulting market with the evolving global situation		Chris Barnobi Edgar Olvera
Focused Presentations	Show Your Data: Architectural Acoustics Metrics	It can be measurement or simulation data, or a comparison of both. Share interesting findings from research or applied work.		Bruce Olson Ana Jaramillo
<b>BIOMEDICAL ACOUSTICS</b>				
Lightning Round	Advances in Ultrasound Imaging	Current research in the field of ultrasound imaging will be presented. Authors will be available to answer questions.		Karla Mercado-Shekhar
Panel Discussion	Advances in Ultrasound Imaging: Novel Imaging Methods	Panelists will discuss the latest trends in ultrasound imaging technology and methods.		Liberataro Demi
Tutorial	Advances in Ultrasound Imaging: Passive Cavitation Imaging/Mapping	The theory and implementation of passive cavitation imaging for monitoring will be presented in this tutorial. Examples that address the influence of medium properties and array performance will be reviewed.		Kevin Haworth Michael Gray
Panel Discussion	Advances in Ultrasound Imaging: Ultrasound Contrast Agents	Perspectives on the state of the art for ultrasound contrast agents will be discussed from leaders in the academic and industry communities.		James Kwan

Panel Discussion	Future Directions in Therapeutic Ultrasound	Panelists from academia and industry will discuss current and future perspectives in the field of therapeutic ultrasound.	PA	Ken Bader
Lightning Round	Instrumentation and Simulation in Biomedical Acoustics	Current research in the field of instrumentation and simulation for biomedical acoustics devices will be presented. Authors will be available to answer questions.		Virginie Papadopoulou
Panel Discussion	Instrumentation and Simulation in Biomedical Acoustics: Rapid Prototyping for Focused Ultrasound Sources	This panel discussion will review current methods in prototyping therapeutic sources. State of the art techniques will be outlined, and current limitations addressed.		Adam Maxwell Tim Hall
Tutorial	Instrumentation and Simulation in Biomedical Acoustics: Using k-Wave for Simulation of Ultrasound Pulses	In this tutorial, instruction in the use of k-Wave to simulate acoustic fields will be reviewed. Examples of benchmark simulations will be run and reviewed, and code provided to participants to work in sync during instruction.		Brad Treeby
Tutorial	Pre-Clinical Models for Therapeutic Ultrasound	Common pre-clinical models used to test therapeutic ultrasound systems will be reviewed, including methods to assess treatment efficacy.		Julie Simon
Lightning Round	Therapeutic Ultrasound	Current research in the field of therapeutic ultrasound will be presented. Authors will be available to answer questions.		Himanshu Shekhar
<b>COMPUTATIONAL ACOUSTICS</b>				
Focused Presentations	Computational Methods for Complex Media and Geometries	Computational methods and innovative applications involving sound fields in complex heterogeneous media, or with complex geometries and boundary conditions.		Keith Wilson Kuangcheng Wu
Lightning Round	Innovative Ideas for Computational Acoustics	Brief presentations on innovative and useful ideas for computational acoustics. Enhanced numerical techniques as well as practical programming tips are welcome.		Mallory Morgan Mahdi Farahikia Andrea Calihanna
Focused Presentations	Normal Mode Methods Across Acoustics	Applications and model enhancements for normal mode models in all applicable technical areas.	BA, PA, UW	Jennifer Cooper Michelle Swearingen Subha Maruvada
Tutorial Session	Tutorials on Computation Techniques and Best Practices	Computational acoustics is implemented in a variety of ways in many different disciplines to better understand the way sound behaves. This session will provide tutorial talks on common computational methods and provide opportunities to ask researchers questions about the basic techniques of acoustics and how to implement them with best practices in mind.	MU	Kimberly Riegel Gary Scavone

**EDUCATION IN ACOUSTICS**

Focused Presentations	Reflections on Teaching Acoustics During a Pandemic	After a couple of semesters of teaching acoustics related courses (undergraduate and graduate, lecture, laboratory, studio) online during the COVID-19 pandemic, we are interested in sharing what we've learned from the changes we've made regarding course delivery, course content, teachings styles, student-teacher interactions, etc. This NOT a "how to teach in Zoom" or "teaching in PPE" session. Instead, we want to discuss what we've learned after changing our approaches to teaching acoustics (online, or in-person, or hybrid) during the pandemic with an emphasis on (i) things that worked worked well and that we would do again if necessary, (ii) things we would like to retain when we return to a "normal" in-person classroom, and (iii) what we would do differently if faced with a similar situation.	PP	Daniel Russell
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**ENGINEERING ACOUSTICS**

Focused Presentations	Acoustic Transducers and Transduction Mechanisms	Seeking contributions presenting research on new acoustic and transducers. Topics may include new transduction materials and transduction mechanisms or recent advances of well-known acoustic transducer technology.		Thomas Blanford Vahid Naderyan
Focused Presentations	Back to the Future: Historical Perspectives and Current Engineering Topics	This session seeks contributions that discuss seminal contributions in the area of engineering acoustics and their relevance to existing and emerging technology acoustics.		Roger Richards Michael Haberman
Focused Presentations	Emerging Topics in Engineering Acoustics	This session will include presentations on theoretical and technological advancements of relevance to advancing engineering acoustics research. Contributions may include intersectional research between acoustics applications and device fabrication, signal processing techniques, or similar topics.		Caleb Sieck Thomas Blanford
Focused Presentations	Engineering Acoustics in Industry	Application of engineering acoustics research to address technological needs in industry.		Gary Elko Michael Haberman

**MUSICAL ACOUSTICS**

Focused Presentations	Acoustics of Harps and Zithers	The focus of this session is instruments that are in the harp and zither families, with single or multiple strings that are either plucked or struck, including the koto, qin, santur, and harps of all types.	SA	James Cottingham Christopher Waltham
Focused Presentations	Focus on Student and Early Career Researchers	Simulating the function of musical instruments and other related acoustical phenomena requires the development of suitable numerical methods for reliable computations. This session invites contributions regarding the formulation and implementation of such methods for sound synthesis and sound analysis applications.		Andy Piacsek Kurt Hoffman
Focused Presentations	Guitar Acoustics	This session will focus on the acoustics of the guitar and related plucked string instruments. The scope of the session is anything related to guitars, including, but not limited to, material, design, measurement, modeling, and effects processing.	SA,CA	Mark Rau Jonas Braasch
Focused Presentations	Numerical Methods for Musical Acoustics	Simulating the function of musical instruments and other related acoustical phenomena requires the development of suitable numerical methods for reliable computations. This session invites contributions regarding the formulation and implementation of such methods for sound synthesis and sound analysis applications.		Vasilis Chatzioannou Mark Rau Nick Giordano

**NOISE**

Focused Presentations	Non-Occupational Noise and Hearing Loss	Traditionally hearing loss is frequently attributed to a person's occupational noise exposure. This session will focus primarily upon noise exposures that are experienced outside of the workplace. Occupational noise exposures that are common outside of work will also be considered.	ASACOS, PP	William J. Murphy Bonnie Schnitta
Focused Presentations	Pandemic Noise Reduction/Impact	Papers on the impacts COVID-19 has/had upon environmental or community noise due to shelter-in-place and other changes associated with the pandemic.	ASACOS	Kirill Horoshenkov Abigail Bristow
Focused Presentations	Soundscape Projects: Networking, Participation, and New Technology	Bringing together scholars and professionals to discuss current soundscape projects and establish new collaborations.	AA, AB, ASACOS, PP	Antonella Radicchi Brigitte Schulte-Fortkamp

**PHYSICAL ACOUSTICS**

Focused Presentations	Acoustical Methods and Sensors for Challenging Environments	Measurements and sensor development in diverse industrial and non-industrial settings under difficult and challenging conditions, such as high pressure, high temperature, corrosives and radiation.	EA, ASACOS	Cristian Pantea Dipen Sinha
Focused Presentations	Acoustic Wave Propagation Through Polydisperse Scatterers	Theoretical, computational and experimental aspects of scattering in complex media containing polydisperse populations of scatterers. Topics include multiple scattering, spatial heterogeneity, inverse problems, scatterer interactions,	BA, SP, CA, SA	Nick Ovenden Eleanor Stride
Focused Presentations	Particle Velocity Sensing and Associated Signal Processing	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	SP, SA, EA, ASACOS, UW	W.C. Kirkpatrick Alberts Ning Xiang
Focused Presentations	Sonic Boom: Modeling, Measurement, Annoyance and Standards Development	All aspects of sonic boom such as propagation, modeling, measurements, annoyance, and standards development as well as plans related to the X-59 QueSST aircraft and the on-going series of NASA CarpetDIEM flight tests, and previous flight tests that NASA conducted.	NS, SA, ASACOS, CA	Joel Lonzaga Alexandra Loubeau

**PSYCHOLOGICAL AND PHYSIOLOGICAL ACOUSTICS**

Focused Presentations	Linking Psychological and Physiological Acoustics	In this session we welcome submissions from all areas of Psychological and Physiological Acoustics, but the focus will be on work that brings together "the two Ps" and priority will be given to early career investigators.		Erick Gallun Virginia Best
Panel Discussion	Open Source Audio Processing Platform--Live Workshop!	This workshop introduces the Tympan Open Source Audio Processing and Hearing Aid Platform ( <a href="http://www.tympan.org">www.tympan.org</a> ), which wraps powerful audio hardware and software tools in a user-friendly app and novice programming environment. The session will feature virtual tutorials, an Q&A, and an invitation to participate in a hackathon challenge. Participants to the hackathon will be invited to present their results at the Fall 2021 ASA meeting.		Odile Clavier

**SIGNAL PROCESSING**

Focused Presentations	Bayesian Signal Processing and Machine Learning	Bayesian inference and inversion including both parameter/uncertainty estimation and model comparison/selection as applied to signal processing, feature extraction, machine learning, and sequential estimation in a wide range of acoustics fields, including various random sampling methods within a Bayesian framework	CA	Ning Xiang Stan Dosso Peter Gerstoft
Lightning Round	Recent Research in Acoustic Signal Processing	You are invited to share a 5-minute update on recent research you have been involved in.		Brian E. Anderson Trevor W. Jerome
Focused Presentations	Signal Processing for Environmental Sensing	This session focuses on acoustical signal processing to detect, to measure, to analyze, to model environmental processes of scientific interest as well as to mitigate environmental pollution of an acoustic or a non-acoustic nature, e.g., noise source localization in soundscape, acoustic time-frequency signatures of environmental processes, spectral analysis of bioacoustic studies in different environments, studying macro and micro environmental events, studying pollutants using underwater acoustic sensors networks, and any such topics.	AB	Ananya Sen Gupta Kainam Thomas Wong

Focused Presentations	Signal Processing Methods and Applications for Autonomous Vehicles	A session covering acoustic applications in autonomous vehicles on land, in the air, and underwater. Topics of interest include but are not limited to: acoustic localization in GPS denied environments, short-range acoustic sensing, as well as detection, classification, and localization of acoustic events.	PA, SA, EA, UW	Amanda Lind Georgios Sklivanitis
<b>SPEECH COMMUNICATION</b>				
Focused Presentations (Invited talks only)	Ideas Worth Reconsidering in Speech Perception and Production	Range of topics where we revisit classic ideas in speech communication that are widely cited or believed to be true, but might be misinterpreted. Topics include acoustic descriptions of speech, auditory perceptual phenomena, or the extent to which results generalize or do not generalize to situations outside the lab.	PP	Matthew Winn Richard Wright
Lightning Round	Ideas Worth Reconsidering in Speech Perception and Production	Range of topics where we revisit classic ideas in speech communication that are widely cited or believed to be true, but might be misinterpreted. Topics include acoustic descriptions of speech, auditory perceptual phenomena, or the extent to which results generalize or do not generalize to situations outside the lab.	PP	Matthew Winn Richard Wright
Focused Presentations (Invited talks only)	Speech Studies Conducted Remotely: Methods and Examples	In this session, we will discuss the challenges of performing speech production and perception, including testing intelligibility, in remote and virtual settings. The focus will be on the methodological challenges and case studies results.		Sandie Keerstock Pasquale Bottalico Eric Hunter
Tutorial Session	Speech Studies Conducted Remotely: Methods and Examples	In this session, we will discuss the challenges of performing speech production and perception, including testing intelligibility, in remote and virtual settings. The focus will be on the methodological challenges and case studies results.		Sandie Keerstock Pasquale Bottalico Eric Hunter
Lightning Round	Speech Studies Conducted Remotely: Methods and Examples	In this session, we will discuss the challenges of performing speech production and perception, including testing intelligibility, in remote and virtual settings. The focus will be on the methodological challenges and case studies results.		Sandie Keerstock Pasquale Bottalico Eric Hunter
Focused Presentations (Invited talks only)	Teaching Speech and Hearing Science to Undergraduates	Share your pedagogical techniques, classroom demonstration and lab exercises.	PP, ED	Tessa Bent Jennifer Lentz Paul Reed
Lightning Round	Teaching Speech and Hearing Science to Undergraduates	Share your pedagogical techniques, classroom demonstration and lab exercises.	PP, ED	Tessa Bent Jennifer Lentz Paul Reed

**STRUCTURAL ACOUSTICS AND VIBRATION**

Focused Presentations	Acoustic Metamaterials	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.	EA, PA	Christina Naify Alexey Titovich Bogdan Popa
Focused Presentations	Best Practices and Recent Advances in Structural Acoustics and Vibration	Includes presentation of best practices and/or latest developments in analytical, computational, and experimental structural acoustics and vibration.		Robert M. Koch
Focused Presentations	Capabilities and Limitations of the Computational Analysis of Metamaterials	Addresses the current challenges faced and novel numerical techniques used in the modeling of acoustic and elastic wave metamaterials, including the computation of band structures, wave propagation, multiscale physics, and effective material properties.	CA, EA, PA	Anthony Bonomo Ben Goldsberry Amanda Hanford
<b>UNDERWATER ACOUSTICS</b>				
Focused Presentations	Seabed Characterization Experiment 2017 Studies	Analyses, insights, and discussions based on the data collected during the Seabed Characterization Experiment 2017		Tracianne Neilsen Zoi-Helena Michalopoulou Charles Holland
Focused Presentations	The Effects of COVID-19 on Global Ocean Soundscapes	Investigations of the existence, signal strength and spatial distribution of signatures of the pandemic in global ocean ambient sound data, as well as potential effects on marine biota.		David Barclay
Panel Discussion	Underwater Sound Modeling: Comprehensive Environmental Descriptions	Valid environmental information is critical for effective modeling and simulation of underwater sound. Subject matter centers on the latest methods for best describing water, seabed and surface conditions in models.		Tim Duda Bruce Cornuelle