

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, 11–15 May 2020.

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 abstract submission guidelines and submission 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)

Acoustic Monitoring in Environments Suitable for Ocean Energy Extraction
(Joint with: Underwater Acoustics, Animal Bioacoustics)
Organized by: David Barclay, Andone Lavery, Christopher Bassett

Long Term Acoustic Time Series in the Ocean
(Joint with: Underwater Acoustics, Animal Bioacoustics)
Organized by: Jennifer Miksis-Olds, Joe Warren

The Effects of Ocean Dynamics and Seabed Complexity on the Mid-Frequency Inverse Problem
(Joint with: Underwater Acoustics, Signal Processing in Acoustics, Computational Acoustics)
Organized by: David Knobles, Preston Wilson

ANIMAL BIOACOUSTICS (AB)

Acoustic Behavior of Mammals: Session in Memory of Jeanette Thomas
Organized by: Mardi Hastings

Celebrating Peter Narins' Contributions to Auditory Science
(Joint with: Psychological and Physiological Acoustics)
Organized by: Andrea M. Simmons, Mark A. Bee

Classifying and Quantifying Natural Soundscapes
(Joint with: Acoustical Oceanography, Underwater Acoustics)
Organized by: Michael Stocker

ARCHITECTURAL ACOUSTICS (AA)

A Day in the Life of a Building in Use
(Joint with: ASA Committee on Standards, Noise)
Organized by: Gregory Miller

Acoustics in Healthcare: Guidelines, Human Response, and the Way Forward
(Joint with: ASA Committee on Standards, Noise, Speech Communication)
Organized by: Jay Bliefnick, Ken Good,

DESCRIPTIVE SENTENCES

Development of passive and active acoustic systems and models for environments targeted for ocean energy extraction such as tidal channels, rivers, and surface wave fields

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

Creating effective physics based models of the ocean and seabed for inverse problems

Commemorate the contributions of Jeanette Thomas to understanding mammal behavior and communication, using bioacoustics as a population assessment tool, and educating the next generation of bio-acousticians

Celebration of Peter Narins' contributions to auditory science on the occasion of his retirement

The term "Soundscape" was coined in 1969 by city planner Michael Southworth, and popularized by composer and acoustic ecologist R. Murray Schafer in the mid 1970's. But even after almost 50 years, the term remains a philosophical conceit which has resisted classifiers or quantification metrics. This session will provide opportunities to map out the idea with a more concise vocabulary, and with an ear towards developing a more replicable understanding of the term.

Lessons learned about acoustic choices made during design and how those choices have supported - or hindered - the end users of a building. Direct feedback from the users is welcome and emphasis will be placed on recommended adjustments to design criteria or other approaches to future projects

Exploring the state of healthcare acoustics, ways to meet current guidelines, and opportunities for improvements in the future

ARCHITECTURAL ACOUSTICS (AA) (cont)

AIA CEU Presenters Course Training Session
Organized by: Tony Hoover, Bennett Brooks, Kenneth W Good Jr.

Courts and Municipal Buildings
(Joint with: ASA Committee on Standards, Noise)
Organized by: Jessica Clements

New Developments in Classroom Acoustics
(Joint with: ASA Committee on Standards, Noise, Education in Acoustics, Speech Communication)
Organized by: David Lubman, David Woolworth, Laura Brill

Recording and Production Spaces
(Joint with: ASA Committee on Standards)
Organized by: Ronald Eligator

Session in Honor of William J. Cavanaugh
Organized by: K. Anthony Hoover

Session in Memory of Jiri Tichy
(Joint with: Engineering Acoustics, Noise, Signal Processing in Acoustics)
Organized by: Victor W. Sparrow, Gary W. Elko

BIOMEDICAL ACOUSTICS (BA)

Bubble-Cell Interaction
Organized by: Klazina Kooiman, Eleanor Stride

Death to Delay and Sum: Advanced Beamforming
(Joint with: Signal Processing in Acoustics)
Organized by: Ken Bader, Kevin Haworth

Fractional Calculus Models of Compressional and Shear Waves for Medical Ultrasound
(Joint with: Physical Acoustics, Structural Acoustics and Vibration, Computational Acoustics)
Organized by: Sverre Holm, Robert McGough

Modelling and Measuring Nonlinear Ultrasound Signals
(Joint with: Physical Acoustics, Signal Processing in Acoustics, Computational Acoustics)
Organized by: Keith Wear, Thomas Szabo

Superresolution Imaging
(Joint with: Physical Acoustics, Signal Processing in Acoustics)
Organized by: Jeff Ketterling, Michael Oelze,

COMPUTATIONAL ACOUSTICS (CA)

Acoustic Optimization: Methods and Applications
(Joint with: Structural Acoustics and Vibration, Underwater Acoustics, Acoustical Oceanography)
Organized by: Micah Shepherd

Domain Truncation Techniques for Exterior Problems
(Joint with: Structural Acoustics and Vibration)
Organized by: Anthony Bonomo, Benjamin Goldsberry

Ray Methods Across Acoustics
(Joint with: Underwater Acoustics, Physical Acoustics, Structural Acoustics and Vibration)
Organized by: Michelle Swearingen, Jennifer Cooper

DESCRIPTIVE SENTENCES

Architects must continue their education by taking courses to maintain certification. TCAA offers a 1 hour Continuing Education Unit course in the much coveted area of Health & Safety. This AIA accredited course is available for qualified TCAA Members. To qualify, presenters must be a Member of ASA, a Member of TCAA and must have completed this training session. The session length will be 2 hours, with no contributed papers

Architectural acoustic design aspects, challenges and case studies of courts and municipal buildings including those of the federal, state or local levels

Discussing current design trends in classroom acoustics, with emphasis on project case studies

Designing and achieving acoustic quality in small rooms for audio recording and production

Honoring the contributions of Bill Cavanaugh to acoustics, consulting, education, and our professional societies

Celebration of the life of Professor Jiri Tichy and his contributions to architectural acoustics, noise, signal processing in acoustics, and acoustics education for over six decades

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

Advanced image formation techniques, particularly those beamforming algorithms based on data-specific metrics

Fractional calculus models of compressional and shear waves. Various numerical and analytical fractional calculus models of attenuation in medical ultrasound and also on different applications that require fractional calculus models are welcome

Methods for characterizing acoustic and thermal effects of ultrasound signals with high harmonic content, such as those used in acoustic radiation force impulse (ARFI) imaging, hyperthermia, lithotripsy, and high intensity therapeutic ultrasound (HITU)

Emerging techniques involving super-resolution imaging including image processing methods, applications, and instrumentation

Application of formal optimization to improve acoustic performance, including new or improved problem formulation, multi-objective techniques, benchmark problems, algorithm development, and real-world applications

Development and application of techniques (infinite elements, perfectly matched layers, radiation boundary conditions, and others) required to model infinite or semi-infinite problems using finite computational domains

Comparison of the use of ray tracing methods in different areas of acoustics

COMPUTATIONAL ACOUSTICS (CA) (cont)

Showcases of High Performance Computing in Acoustics
(Joint with: Underwater Acoustics, Acoustical Oceanography, Signal Processing in Acoustics, Structural Acoustics and Vibration, Musical Acoustics, Architectural Acoustics, Physical Acoustics, Biomedical Acoustics, Psychological and Physiological Acoustics, Animal Bioacoustics)

Organized by: Dr. Kuangcheng Wu, Shung (Sue) H. Sung, Ralph T. Muehleisen

ENGINEERING ACOUSTICS (EA)

Microphones: From Rock Stars to Rockets
(Joint with: Architectural Acoustics, ASA Committee on Standards)
Organized by: Ed Okorn, Sandra Guzman, Neil Shaw, Vahid Naderyan, Caleb Sieck

Miniature Acoustic Sources
(Joint with: Structural Acoustics and Vibration)
Organized by: Vahid Naderyan, Mohammad Mohammadi

EDUCATION IN ACOUSTICS (ED)

Acoustics Demonstrations for Classroom Teaching
(Joint with: Musical Acoustics, Physical Acoustics, Structural Acoustics and Vibration, Noise, Architectural Acoustics)
Organized by: Daniel Russell

Hands-On Demonstrations
(Joint with Women in Acoustics)
Organized by: Daniel Russell, Keeta Jones

Listen Up and Get Involved!
(Joint with Women in Acoustics)
Organized by: Keeta Jones, Tracianne Neilsen

Undergraduate Research Symposium Poster Session
Organized by: Daniel Russell

INTERDISCIPLINARY (ID)

Excellence in Acoustics Around the World
Organized by: Brigitte Schulte-Fortkamp, Andy Chung

Graduate Programs in Acoustics Poster Session
Organized by: Keiren Smith

MUSICAL ACOUSTICS (MU)

Acoustics of Harps and Related Instruments
(Joint with Structural Acoustics)
Organized by: James Cottingham, Chris Waltham

Computational Phonogram Archiving
(Joint with Signal Processing in Acoustics, Computational Acoustics)
Organized by: Rolf Bader

Music Venue Acoustics and Architecture
(Joint with: Architectural Acoustics)
Organized by: Rolf Bader, Tim Ziemer

DESCRIPTIVE SENTENCES

Recently high performance computing has been extensively used to accelerate engineering design. Studies that highlight the benefits of utilizing high performance computing across all acoustic fields, such as in analyzing big data, performing numerical analyses, or supporting machine/deep learning are welcome

History, variety, and applications of microphones used in areas such as scientific discovery, commercial electronics, medical devices, and entertainment. Microphone engineering design, technology, applications, and challenges will be addressed, in addition to current and future demands driving new designs

Topics related to miniature acoustic transducers including balanced armature speakers, thermophones, and other novel or classical transduction mechanisms

Innovative and novel apparatus for demonstrating acoustics concepts in the classroom, for introductory, advanced, and graduate level courses. Classical demonstrations are welcome, but we are especially looking for demonstrations from a wide variety of topical areas, demonstrations of phenomena that can be difficult to understand or visualize, and new or innovative ways of demonstrating acoustics and vibration concepts. A panel discussion will follow for audience members to interact with demonstrations and presenters. Limited funds are available to assist in shipping equipment to Chicago

Hands-on Demonstrations for High School and/or Middle School students

Hands-on Demonstrations and activities for local Girl Scouts

Poster session for undergraduate students to present their research on acoustics topics related to all technical committees areas.

Increasing international collaboration and communication in all matters of acoustics through the support of the International Liaison Committee and through recruiting international ASA members

Poster session for graduate programs to present their programs to students seeking to study acoustics

Presentations on issues related to the design, construction, performance, and acoustics of harps, zither-type instruments, and other related musical instruments

Modern music archives, streaming platforms, film music distributors, or museums or collections are in need of computational, artificial intelligent, automatic tools to analyze, sort, and understand the Big Data of modern collections. Tools like Music Information Retrieval, Self-Organizing Maps (SOMs) or Machine Learning techniques, problems from archives and related topics, demands and problems in this field.

Acoustical and architectural demands and constraints of a music venue, concert hall, music club etc. are often not aligning. Venues sound according to architecture, visual elements in a hall are caused by acoustic needs. Problems, solutions, and future suggestions in this field will be discussed, built venues are analyzed and discussed, and new suggestions for improving the situation, like metamaterials for room acoustics or wavefield-synthesis, next to other techniques, are presented

MUSICAL ACOUSTICS (MU) (cont)

Musical Acoustics Education at the Undergraduate Level
(Joint with: Education in Acoustics)
Organized by: Andrew Morrison

NOISE (NS)

Advances in Hearing Protection Devices
(Joint with: Psychological and Physiological Acoustics, ASA Committee on Standards)
Organized by: Cameron Fackler, William Murphy, Elliott Berger

Forty-One Years of Responding to External Stimuli: A Session in Honor of Elliott Berger
(Joint with: ASA Committee on Standards)
Organized by: Cameron J. Fackler, Laurie Wells, William J. Murphy

Impact of Transportation Noise on Buildings
(Joint with: Architectural Acoustics, Structural Acoustics and Vibration, ASA Committee on Standards)
Organized by: Benjamin E. Markham, James E. Phillips

In Memory of Richard Lyon
(Joint with: Structural Acoustics and Vibration and Architectural Acoustics)
Organized by: Patricia Davies, Greg Tocci (TBC)

Larry H. Royster Memorial Session
(Joint with: Education in Acoustics)
Organized by: Elliott H. Berger, Noral D Stewart

Regulatory Implications of Findings About Health Consequences of Transportation Noise
(Joint with: ASA Committee on Standards, Psychological and Physiological Acoustics)
Organized by: Sandy Fidell

Soundscape Projects: Networking, Participation, and New Technology
(Joint with: Architectural Acoustic, Animal Bioacoustics, ASA Committee on Standards)
Organized by: Antonella Radicchi, Brigitte Schulte-Fortkamp

Standardization in Soundscape: Application and Development
(Joint with: Architectural Acoustics, ASA Committee on Standards)
Organized by: Brigite Schulte-Fortkamp, Andre Fiebig

PHYSICAL ACOUSTICS (PA)

Acoustic Wave Propagation Through Polydisperse Scatterers
(Joint with: Biomedical Acoustics, Signal Processing in Acoustics, Computational Acoustics, Structural Acoustics and Vibration)
Organized by: Nick Ovenden, Eleanor Stride

Acoustical Measurements Through Optical Principles
(Joint with: Biomedical Acoustics, Musical Acoustics)
Organized by: Gregory Lyons, Thomas Moore

Acoustical Methods and Sensors for Challenging Environments
(Joint with: Engineering Acoustics, ASA Committee on Standards)
Organized by: Cristian Pantea, Dipen Sinha

Acoustofluidics
(Joint with: Biomedical Acoustics, Engineering Acoustics, Structural Acoustics and Vibration)
Organized by: Max Denis, Kedar Chitale, Charles Thompson, J. Mark Meacham

DESCRIPTIVE SENTENCES

Discussions of innovative ways of teaching musical acoustics at the undergraduate level - including demonstrations, laboratory experiments, simulations, and other classroom activities to promote active learning

Advances and research in hearing protection devices, including fit testing, speech intelligibility, sound localization, impact noise, and comfort

Honoring Elliott Berger's career and his contributions to the field of hearing loss prevention and acoustic standards

Noise impacts of transportation sources - rail, aircraft, vehicular - on buildings. Relevant topics include source characterization and measurement, means of attenuation/mitigation, prediction methods, validation procedures, and others

Presentations by former students, collaborators, and colleagues of Richard Lyon and people inspired by Dick's body of work. Presentations will highlight Dick's contributions to the field of acoustics. Family and friends will also participate so that they can enjoy how Dick was valued by his acoustics colleagues

Honoring the contributions of Larry Royster to hearing conservation, noise control, student support, and the society with additional current papers on effective hearing conservation programs

Papers providing information on the regulatory implications of technical and popular accounts of adverse public health consequences of transportation noise exposure, followed by a panel discussion

Bringing together scholars and professionals to discuss current soundscape projects and establish new collaborations

Trends and applications worldwide

Current research on the scattering of acoustic waves through a complex medium containing a polydisperse population of scatterers. Such populations are ubiquitous in problems involving microbubble contrast agent imaging, oceanography, composite materials and food production but present significant computational complexity. Talks on challenging issues such as multiple scattering, spatial heterogeneity, inverse problems, scatterer interactions, evolving populations and efficient computation are all welcome

Recent advances and applications in measurement of both linear and nonlinear acoustic fields through optical methods

Measurements and sensor development in diverse industrial and non-industrial settings under difficult and challenging conditions, such as high pressure, high temperature, corrosives, radiation, and more

Topics related to interaction of acoustics and fluidics

PHYSICAL ACOUSTICS (PA) (cont)

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

The Impact of Logan Hargrove on Physical Acoustics
(Joint with: Structural Acoustics and Vibration)
Organized by: Preston Wilson, Ralph Muehleisen, Veerle Keppens

PSYCHOLOGICAL AND PHYSIOLOGICAL ACOUSTICS (PP)

Acoustics Outreach to Student Scientists in Clinical and Physiological Research
(Joint with: Education in Acoustics, Speech Communication, Biomedical Acoustics)
Organized by: Kelly Whiteford, Anahita Mehta

Age-Related Changes in Mechanisms of Speech Perception
(Joint with: Speech Communication)
Organized by: Pamela Souza, Monita Chatterjee

Honoring William Yost's Contributions to Psychological Acoustics
Organized by: Robert Lutfi

Machine Learning Approaches to Understanding Auditory Processing and Perception
(Joint with: Computational Acoustics, Signal Processing in Acoustics, Animal Bioacoustics, Speech Communication)
Organized by: Sarah Verhulst

Acoustics Outreach to Early Career Scientists in Clinical and Physiological Research: Top Down Influences on Auditory Processing
(Joint with: Speech Communication)
Organized by: Bonnie Lau, Andy Dykstra

SIGNAL PROCESSING IN ACOUSTICS (SP)

Acoustic Source Localization
(Joint with Acoustical Oceanography, Animal Bioacoustics, Engineering Acoustics, Underwater Acoustics, Noise, Architectural Acoustics)
Organized by: Zoi-Heleni Michalopoulou, Kainam Thomas Wong, Paul Gendron

Knowledge Discovery and Information Representation for Signal Processing in Acoustics
(Joint with: Animal Bioacoustics, Underwater Acoustics, Computational Acoustics, Acoustical Oceanography)
Organized by: Ananya Sen Gupta, Ben Taft

Machine Learning in Acoustics
(Joint with: Animal Bioacoustics, Underwater Acoustics, Computational Acoustics, Acoustical Oceanography)
Organized by: Erin Fischell, Daniel Plotnick, Wu-Jung Lee

Random Matrix Theory in Acoustics
(Joint with: Underwater Acoustics)
Organized by: Kathleen E. Wage, John R. Buck

Reconfigurable Arrays for Adaptive Wave Guiding
(Joint with: Engineering Acoustics, Physical Acoustics, Acoustical Oceanography, Underwater Acoustics)
Organized by: Ryan L. Harne, Jeffrey Rogers

DESCRIPTIVE SENTENCES

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

Logan Hargrove's impact on physical acoustics, as an ONR program manager sponsoring research on the topics of nonlinear acoustics, resonant ultrasound spectroscopy, thermoacoustics, among others and his thirty-year-plus legacy of support for the Physical Acoustics Summer School

Increase ASA attendance from students whose work relates to both clinical and physiology research, with priority given to students who have never attended ASA

Studies of top-down and bottom-up mechanisms of speech perception in older adults, with consideration of the effects of hearing devices

Recognizing and honoring the contributions and influences of the work of William Yost to the field of psychoacoustics.

How novel computational methods can provide insights to how (impaired) auditory processing, perception and stream segregation

In complex acoustic environments, what we hear is not always a direct reflection of physical sound sources. Behavioral context, including the goals of the listener and the demands placed on them, can have a large impact on how certain acoustic stimuli are processed by the ascending auditory pathway. The range of such effects, which can extend even down to the level of the cochlea, in both normal and abnormal auditory processing will be explored

Theory and real-data applications of acoustic source localization

Knowledge representation and information discovery across a wide range of acoustic signal processing applications. Topics will involve computational techniques that create informed data representations that bridge the gap between physical models and statistical ones. Applications include, but are not limited to, underwater acoustics, speech signal processing, biomedical acoustics, and animal bioacoustics

Machine learning applications to all kinds of acoustic data, including for parameter estimation and classification. Best-practice machine learning techniques based on different acoustic feature space complexities

Application of random matrix theory to acoustic signal processing and wave propagation

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

SPEECH COMMUNICATION (SC)

Developing a Cross-Platform Federated Code Repository for Speech Research
Organized by: Charles Redmon, Matthew C. Kelley, Benjamin V. Tucker

Ideas Worth Reconsidering in Speech Perception and Production
(Joint with: Psychological and Physiological Acoustics)
Organized by: Matthew Winn, Richard Wright

Listening in Challenging Circumstances
(Joint with: Noise, Architectural Acoustics, Psychological and Physiological Acoustics)
Organized by: Kristin Van Engen, Melissa Baese-Berk

Reintroducing the High-Frequency Region to Speech Perception Research
(Joint with: Psychological and Physiological Acoustics)
Organized by: Ewa Jacewicz, Robert Fox

Teaching Speech and Hearing Science to Undergraduates
(Joint with: Education in Acoustics, Psychological and Physiological Acoustics)
Organized by: Freddie Bell-Berti, Alex Francis, Jennifer Lentz

STRUCTURAL ACOUSTICS AND VIBRATION (SA)

Acoustic Metamaterials
(Joint with: Physical Acoustics, Engineering Acoustics)
Organized by: Christina Naify, Alexey Titovich, Bogdan Popa

Active or Tunable Structural Acoustics
(Joint with: Engineering Acoustics, Signal Processing in Acoustics, Noise)
Organized by: Christina Naify, Ben Beck

Non-Contact Vibration Measurement Methods
(Joint with: Engineering Acoustics, Physical Acoustics, Musical Acoustics)
Organized by: Ben Shafer, Tyler J. Flynn

Real-World Case Studies in Structural Acoustics and Vibration of Vehicles
(Joint with: Engineering Acoustics, Noise ASA Committee on Standards)
Organized by: Robert M. Koch, Shung H. Sung

Historical Development of Fuzzy Structures Concepts
Organized by: Jerry Ginsberg, David Feit, Kuangcheng Wu

Soft and Compliant Metamaterials
(Joint with: Physical Acoustics, Engineering Acoustics)
Organized by: Ryan Harné, Katie Matlack, Stephanie Konarski

UNDERWATER ACOUSTICS (UW)

Acoustics of Underwater Explosions
(Joint with: Acoustical Oceanography, Signal Processing in Acoustics)
Organized by: Peter Dahl, Ross Chapman

DESCRIPTIVE SENTENCES

Bring together developers and contributors to packages and code repositories in R, Python, Julia, MATLAB, and Praat, and discuss what resources are currently available, what is in preparation, and what principles to adopt if these resources were to be integrated into a single cross-platform code base with common standards for documentation and review

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

Bring together researchers who are investigating challenges to human speech recognition (e.g. noise, hearing loss, unfamiliar accents), with a focus on the cognitive and neural mechanisms involved in coping with these challenges

New research-based evidence regarding the nature of information available in the high-frequency region in the perception of speech and voice, which has a potential to enhance talker and word recognition in noise. Implications for the advancement of communication technologies and medical applications

Share your pedagogical techniques, classroom demonstration and lab exercises

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

Recent developments in actively attenuating, tuning, or modifying sound and vibration fields

Methods for inducing and/or measuring vibration that are accomplished without physical contact with test specimen or source

Actual practical and hands-on illustrative examples of the application of structural acoustics and vibration best-practices in non-idealized, real-world settings

A modern perspective examination of the topic of fuzzy structures in structural acoustics and vibration reaching its apex in popularity from the 1980's into the 1990's

Designs, models, and experiments to investigate metamaterials composed of soft and compliant media. Interests in all types of polymers, including additively manufactured materials, as built up to metamaterials that may manipulate waves, shock, and vibrations in air and underwater

Explores the acoustics of underwater explosions with topical issues to include but not limited to: scaled-range theory, cavitation associated with sea surface reflection, study of seabed reflection processes and uses of explosive sources in geoaoustics